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Remarks
ON
RECENT ADVANCES IN THE TREATMENT OF SPRUE:
CALCIUM AND PARATHYROID.

BY
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IN February, 1923, a preliminary note was communicated to the Royal Society of Tropical Medicine[1] advocating the employment of calcium lactate and parathyroid in sprue. In a subsequent paper, published in October, 1923,[2] five cases of sprue treated by this method were recorded, and, in the following December, a discussion on sprue and its treatment took place at a meeting of the Tropical Diseases Section of the Royal Society of Medicine. The paper contributed by the present writer, which was read at the discussion, was reported in full in the BRITISH MEDICAL JOURNAL,[3] and, as a result of the publicity thus given to the theory therein detailed, this method has been tried by medical men in this country and in other parts of the world, and the results which have been recorded are such as to warrant a further communication on the subject. A series of cases is described in the present paper varying from those of mild character and recent origin to those of great severity and long standing. For purposes of comparison of the results obtained by this and other forms of treatment selection has been made from amongst those of whom I have fairly full notes, who are of nearly the same age, who show approximately the same degree of severity, or in whom the disease has existed for the same length of time. Appended is a table giving a few particulars of such as have been reported in sufficient detail to provide the information under the different headings.

CASE I.

This was an ordinary case, and the patient had been treated on the lines previously recognized. H. W. B., male, aged 40. The patient's foreign service had been as follows: 1901-4 China; 1905-6 East Indies; 1908-10 the Mediterranean. During these years he had no illness. From 1916 to 1918 he was in Mesopotamia and suffered from malaria and sandfly fever. From 1919 to 1921 he was again in China. Briefly the history of this present illness is that in August, 1921, he began to pass loose, bulky, and frothy stools of a light straw colour; his tongue became sore and tender, with small ulcers occasionally, particularly at the tip. Before his illness his weight was 157 lb. The symptoms continued with very little intermission until November, 1923, when he was admitted to hospital, having lost 20 lb. in weight. He was treated by the usual dietetic and regiminal measures. He was kept in bed and given milk only in increasing amounts. Nothing else was allowed for five weeks, after which time he was given a small sago pudding, eggs (one at first, later two daily), liver soup, and a rusk. The following was his day's nutriment at the end of thirteen weeks: 6 a.m., milk 1 pint; 8 a.m., milk 1 pint, 1 egg, 1 rusk; 10 a.m., milk ½ pint; 12 noon, milk ½ pint, liver soup, sago 3 oz.; 4 p.m., milk ½ pint flavoured with tea, 1 egg, 1 rusk; 7 p.m., milk 1 pint, liver soup, arrowroot; 10 p.m., milk ½ pint. Total 5 pints of milk. While on this diet he suffered a relapse, for which, the physician stated, "no explanation could be found." A sample of his blood was taken and the ionic or free calcium estimation was 9.5 mg. per cent. (the normal being 10.5 to 11.5). He had to go through the mill again, and finally was well enough to leave hospital on April 16th, after a stay of twenty-three weeks, five days. His weight then was 146½ lb., an increase of 10 lb. on what it was on admission, but still 10 lb. below what he stated was his normal.

It is clear from a consideration of his symptoms that this was a comparatively mild case. There had been no cramps, the soreness of the tongue was but slight, and the loss in weight had only amounted to 20 lb. in two and a quarter years. Except for the relapse, which was not a severe one, but which occurred while he was on the strict regimen and had been so for thirteen weeks, this may be regarded as an average case.

We will now pass on to describe our series of cases referred to above, and will start by briefly narrating two mild cases in whom the disease had existed for almost the same length of time. The first was treated by the usual method of diet and rest, the second by the calcium and parathyroid method.

CASE II.

L. E. V., male, aged 42. First went abroad (to India) in 1914. The following year, on the North-West Frontier, he had a "slight attack of dysentery." There was no history of any other illness. In April, 1923, he suffered from diarrhoea, the stools being yellowish-white, bulky, and frothy, and he rapidly lost weight. He left for England at the end of the month and arrived on May 18th. During the voyage the tongue was sore, but the diarrhoea was less, and on arrival he felt better. From that time until admission to hospital early in January, 1924, the motions were never formed, nor of normal colour, and he continued to lose weight; the tongue was at this time very sore. On admission he was anaemic and wasted, and the tongue was red, glazed, and tender. Blood examination showed a reduction of red cells to 3,040,000 per c.mm. and the haemoglobin 70 per cent. The ionic calcium, estimated eighteen days after admission, was still only 6.9 mg. per cent. Five weeks later it was 9.1 per cent. Twelve weeks after admission the red cells had increased to 4,260,000 and the haemoglobin to 80 per cent. After a stay of sixteen weeks and five days he was discharged. He was still having three stools daily, and his diet was milk, sago, 2 eggs, 2 rusks, and pounded fish. The final note made was that he had "progressed favourably. To continue diet and report."

The next patient also contracted the disease in India and very nearly at the same time, and came under treatment after a similar interval.

CASE III.

W. E. J., male, aged 32. Went to India (Bangalore) in 1920. From November, 1921, to May, 1922, he was in Calcutta and thereafter in Bombay. In February, 1923, he suffered with diarrhoea, four or five actions daily, mostly in the morning; the stools were foul, bulky, whitish, and frothy; according to his doctor "typically sprue-like." He also complained of dyspepsia and acidity, and had a sore tongue. He improved under treatment; but only temporarily. The symptoms returned in April, 1923; he passed two large pale stools in the early morning. His normal weight was 176 lb., but by this time it had dropped to 149 lb. During July and August he lived on milk and oranges, and in the middle of September sailed for England. He felt somewhat better on the voyage, but from October 10th his motions became paler—nearly white—and his tongue more sore and tender. When seen on October 24th his weight, in clothes, was 163 lb.; the tongue was red and tender, with two small aphthae. He was unwilling to come into hospital, but promised to keep strictly to milk for a fortnight and to stay in bed. He was given calcium lactate 10 grains thrice daily, and extract of parathyroid (P., D. and Co.) 1/10 grain twice daily. At the end of the fortnight he reported that he felt much better; the soreness of the tongue had quite disappeared, he had some flatulence still, but only one stool daily, almost solid. The ionic calcium had risen to 8.9 per cent. He was now allowed (in addition to the milk) milk puddings, fish, chicken, and some green vegetables. When seen a week later (November 14th) his weight was 173 lb., he felt much brighter, was having usually one action a day—normal in size and darker in colour; occasionally a second stool. The tongue was well enough to allow of his smoking without discomfort. He was now allowed to get up, and the diet was further increased to include potatoes, carrots, spinach, tea, and toast. A week later (November 21st) he "felt well and hungry." He was told he might go on a fuller diet, to include mutton, and, if that caused no discomfort, beef, but not too much fat and no twice-cooked meat. It was considered that the food was now containing all the calcium he needed, so the lactate was stopped, but the parathyroid continued in full doses for another week. On May 28th he said he was quite well; his weight was 178 lb., and he started to come up to London daily for business. The ionic calcium was now normal—10.8 mg. per cent. The parathyroid was therefore reduced to half doses, and was to be left off altogether at the end of the succeeding week (the sixth after commencement).

On January 9th, 1924, he wrote: "Almost immediately after my last visit I knocked off the parathyroid, and, although I have eaten everything, including rich stuffs at Christmas, I feel as fit as a professional footballer. My weight just before Christmas was 186 lb. and my appetite is enormous." This patient returned to India the following month and has kept quite well.

So much for mild cases; next to compare two of moderate severity.

CASE IV.

F. F. G., male, aged 44. Went to Bombay in 1910 and, except when home on leave in 1914 and 1922, has lived in India or Ceylon ever since. Prior to March, 1923, his only illnesses were attacks of malaria and enteric in 1917. At that date, however, he began to suffer with a sore mouth and was passing large, loose stools of light colour. He was treated by dieting with milk and orange juice. In July he went to Simla, and was very bad for four months; the disease was called "hill diarrhoea." He returned to Ceylon in November, and there his condition was diagnosed definitely as sprue and he was put to bed for fourteen days on a diet of milk and eggs. He was then invalided home, arriving about the middle of January. His tongue was not sore then; his weight was 149 lb. and the ionic calcium was 7.7 mg. per cent. Three weeks later this had increased to 9.1 per cent. He stayed in hospital for thirteen weeks; during that period his weight increased to 166 lb. The diet he was then permitted was: Milk 6 pints, eggs 3, sago puddings 2 of 4 oz. each, pounded fish, rusks, and liver soup. He was discharged with the warning, as stated in the final note, "To continue diet programme for sprue. Report progress."

Amongst the cases treated by calcium lactate and parathyroid of which I have notes, that most nearly approaching

the last in severity is the following, and in this patient the disease had existed for nearly two years longer.

Case v.

H. S., male, aged 48. Was abroad in Australia from 1907 to 1910, during which period he enjoyed perfect health. In October, 1920, he went to India, and in January, 1921, had an attack of malaria. The following March he began to suffer from diarrhoea, having some ten actions daily, frothy and light yellow in colour. This was stopped by treatment. In April, 1921, at Bangalore, he still suffered from malaria and at times passed loose stools. He sailed from India in September and arrived in England the following month. In November and December his mouth was tender and sore, but this was better at the end of December, the symptom returning worse than before in April and May, 1922; he also had dyspeptic symptoms—heartburn, nausea, and occasional vomiting. From June to December he was, on the whole, better and kept at work, though suffering at intervals with soreness of the tongue. In March, 1923, he had dyspepsia, diarrhoea with three or four actions daily, and a sore, ulcerated tongue. The diarrhoea was stopped by treatment at one of the London hospitals, but the other symptoms continued in spite of treatment of various kinds—bismuth, salol, opium, dieting with milk, eggs, soups, cereals, etc. His weight, however, which had fallen from his normal of 150 lb. to 136 lb., rose to 144 lb. In October the diarrhoea started again and the motions were large, loose, pale, and frothy—two daily as a rule—and the mouth was still sore. He came into hospital on October 30th. His weight then was only 118 lb. He was kept in bed on a diet of milk only, and was given calcium lactate 15 grains thrice daily, and parathyroid 1/10 grain twice daily. He began to improve at once. In a week his weight had risen to 121¾ lb. and the ionic calcium was 7 mg. per cent., the total 9.9 per cent. His weight in successive weeks was 127, 133¼, 142¾ lb. By November 18th (less than three weeks after admission) his mouth was quite well, and he was feeling hungry; the stools were regaining colour, and his diet had been increased by the addition of milk puddings, eggs, rusks, and fish. In another ten days he expressed himself as "perfectly fit"; he was then taking full diet, had one action of the bowels daily, and this was formed and of normal colour. He left hospital on December 1st, after a stay of four weeks and three days, weighing 146¾ lb. The ionic calcium had risen to 7.4 mg. per cent. in a fortnight, and to within normal limits—10.8 per cent.—at the end of three weeks, and remained there. More than six months later (June 20th, 1924) he called to see me. He stated that he had kept quite well, had had no sore tongue, dyspepsia, or diarrhoea, and smoked heavily. I seized the opportunity to take another specimen of his blood and found that the ionic calcium was more than maintained, being now 11.1 mg. per cent.

The next case is worthy of record as tending to show that, in spite of long persistence of the disease, the upset of the parathyroid is, nevertheless, probably functional only, so that when once the condition has cleared up there is apparently no necessity to continue treatment.

Case vi.

F. G., male, aged 63½. The duration of disease in this case was at least fourteen years (with periods of intermission), possibly longer. This patient was abroad in the West Indies from 1888 to 1898. In 1896 he had an attack of yellow fever, but no other illness except "ulceration of the mouth" (whether this was the earliest sign of his sprue it is impossible now to say). He returned to the West Indies for various periods between 1905 and 1920. In 1909 definite symptoms of sprue made their appearance—recurrent attacks of diarrhoea, with a tender, painful tongue, and loss of weight. During the ensuing eleven years there were intermittent periods of improvement, but in 1921 the diarrhoea, with large, frothy, pale, clay-like stools, became persistent. A diagnosis of chronic pancreatitis was made, but no treatment was of any avail. In 1923 the condition was definitely diagnosed as sprue, and he was treated accordingly by confinement to bed on a strict milk diet. This was continued for four months, and, though the diarrhoea was checked thereby, any attempt to increase the diet led to a return. For two months more he lived on milk and strawberries, with temporary relief, but again a relapse occurred, even while he was on this diet. He came to hospital on May 12th and exhibited the typical symptoms—sore and tender mouth and tongue, flatulence, heartburn, large, pale, frothy, porridge-like stools. His weight was 120 lb. Two days later he started the calcium lactate and parathyroid treatment. The diarrhoea ceased in a week, the motions became formed, and the colour was coming back; the soreness of the tongue disappeared in ten days. In a fortnight his diet was increased. Progress continued without interruption, and seven weeks after admission he left hospital on full diet, with no sore mouth, no tenderness of the tongue, and normal stools. He started to reduce first the calcium and then the parathyroid, and ceased taking either of them four weeks after leaving hospital. He went to Scotland and wrote from time to time to say that he was keeping well, and when he came to London, twelve months later (July 1st, 1924), he called to show himself. He looked the picture of health and his weight was 151 lb. He stated that he had had no symptoms at all since leaving hospital, that he ate any food without restriction, and that he had not taken a single dose of calcium or parathyroid since the previous July.

For comparison with this the following record of a case, also chronic, but not more severe and not of so long standing, is of interest. No parathyroid was given, but calcium only in the form of milk and pulvis Bataviae. It will be seen that in the absence of stabilization the improvement was not maintained, but intermitted.

Case vii.

H. C. B., female, aged 67. Lived in Shanghai from 1907 to 1910, and again, after six months at home in each case, from 1910 to 1913 and 1913 to 1919, when she returned home for good. In 1918 she suffered from diarrhoea with yellowish stools, sometimes frothy. From January to May, 1920, she kept strictly to a milk diet, and for six weeks of this period stayed in bed. Improvement was great, in fact she "considered herself well," but continued on a limited diet of milk, junket, and fruit. The following April she relapsed, having four or more loose motions in the twenty-four hours, and this had continued until she was admitted to hospital in October, 1923. At this time she was passing three to five loose, pale, frothy stools, and the mouth and tongue were sore. She was 26 lb. below her normal weight (119 lb.). She was kept in bed on milk and was given pulvis Bataviae. Within a few days the stools were less frothy, but a fortnight later they were again loose, large, and fermenting, and she had lost a further 2 lb. in weight. In another three weeks, though her weight was maintained (91 lb.), the motions were still bulky, frothy, and somewhat loose. A fortnight later there had been a gain of a pound, after which the improvement was more rapid, nearly 12 lb. being added in the ensuing month. After thirteen weeks in hospital the weight was 103¼ lb. (112½ in clothes; still 7 lb. below what it was before the relapse in April, 1922) and the patient left, the final note being, "Improvement continued, patient left, with instructions as to diet."

As the last in this series of graded cases the following is of interest as being exceptionally severe, accompanied at one time by intense anaemia, the red corpuscles being below 1,000,000 per c.mm. The patient had submitted during the previous ten years to almost every form of treatment, as her history will show.

Case viii.

E. P., female, aged 56. Her illness began in 1914 at Shanghai. In November of that year she was thought to be suffering from dysentery and was treated with emetine. A week after this was stopped she was passing white, formed stools, later clay-coloured and loose. She then went to the Fukien Province, and took santonin for two weeks and lived on milk and fruit. There was no improvement. The following year she was very ill and returned to Shanghai for special treatment. She was made to rest and was strictly dieted for several months. She gained a little weight, but the improvement was not very marked.

At the end of 1916 she relapsed again, and was treated by a three months' course of injections of an autogenous vaccine made from the mouth and the stool. She improved greatly, but was still liable to loose, pale motions. In 1918 she went to South Africa and again relapsed. Early in 1919 she reached England and was treated with sodium cacodylate without obtaining any benefit. In August, 1919, she went to Bath and took santonin for several weeks, under supervision. She gained a little weight, but the symptoms did not improve. She had two relapses in 1920, and improved in a nursing home during the strawberry season, but was worse again as the autumn came on. In February, 1921, she came to hospital in London, and was strictly dieted and given pulvis Bataviae. She was in for seven months, and by that time was allowed fish, sago, eggs, and toast, in addition to milk. She returned to South Africa and the following year to China. In 1922 she had a severe relapse, and was ill with slight intermissions of improvement until September, 1923, when she again went to Shanghai for treatment. Her weight was then only 79 lb.; she was very anaemic, the red cells being 1,000,000 per c.mm. and haemoglobin 30 per cent. Her medical attendant started her on the calcium lactate and parathyroid, and she was soon allowed a diet comprising "underdone beef, mutton chops, fish, eggs, oyster soup, spinach, carrots, grapes, and mangoes." She kept under this régime for six months; the weight increased to 96 lb., and during the later months she had only one stool daily—formed and of good colour. She embarked for England in May, 1924, and stopped all medicine. She took ordinary food throughout the voyage, with good appetite, and in three weeks weighed 112 lb., and had "one well formed normal action daily, and no sprue symptoms."

When seen on June 30th, her weight was 120 lb., the stool was dark and firm; she was having only one action daily, no dyspeptic symptoms and no discomfort, and, in her own words, "feels strong and well, and eats anything." Opportunity was taken to obtain a specimen of her blood, and analysis showed that the ionic calcium was 10.6 mg. per cent.

The above contrasted cases suffice to show that with the administration of calcium and its regulation by parathyroid the disappearance of symptoms occurs early, the ionic calcium returns rapidly to normal, ordinary diet can be resumed in a shorter time, and the beneficial effects are generally steady and permanent. The following case is recorded in order to stress the point that the treatment must not be dispensed with directly the symptoms clear and the ionic calcium attains the normal; in other words, this condition of things requires to be stabilized, and the drugs must be reduced gradually with a view to seeing that the patient is able to carry on the processes unaided

Table of Cases of Sprue treated by Calcium Lactate and Parathyroid.

Initials.	Sex.	Age.	Length of Illness.	Main Symptoms Cleared in—	Result.	Remarks.
		Years.				
P. L. W.	M.	46½	2 years	5-6 weeks	—	Too early for certainty; keeping well two months later.
A. McG.	M.	28	11 months	4 ,,	—	Still well six months later.
F. W. W.	M.	31	5 ,,	3 ,,	Much improved	Parathyroid stopped after three weeks (? reason); relapse over two months later.
L. G. T.	M.	28	5 years	7 ,,	—	Keeping well two months later.
J. P.	F.	? 40	2 ,,	7 ,,	—	Keeping well two months later.
M. C.	F.	40	2 ,,	4 ,,	Recovery	Still quite well sixteen months later.
E. P.	F.	56	10 ,,	? 4 months	—	Keeping well three months later; continued to take parathyroid after symptoms cleared; "afraid to leave off."
J. P. D.	M.	50	3 ,,	6 weeks	?	Left well nine months ago; no news since.
H. H. S.	M.	48	1½ ,,	4 ,,	Recovery	Well seventeen months later.
L.	F.	?	?	10-14 days	—	Keeping well three months later.
F. G.	M.	63½	14 years	4 weeks	Recovery	Still quite well twelve months later.
R. H. M.	M.	21	1 year	3 ,,	,,	Quite well twelve months later.
M. S.	F.	50	Over 5 years	2-3 ,,	Death	See text, Case (1), M. S. Sprue symptoms cleared, died of pernicious anaemia.
H. S.	M.	48	2 years	3 ,,	—	Keeping quite well seven months later.
E. J. W.	M.	32	8 months	17 days	Recovery	Returned to India; well seven months later.
D. G. H.	F.	40	4½ years	?	Improved	Left hospital in five and a half weeks; no news since.
D. W.	M.	51	15 months	14 days	Death	See Case (2), D. W. Died from pernicious anaemia.
J. C. S.	M.	?	1-2 years	6 weeks	Recovery	Returned to duty in China.
J. S.	M.	54	7½ months	3 ,,	,,	Well six months later; remained at work abroad.
E.	M.	?	?	4 ,,	,,	Last report: Keeping well, doing full work.
J. T.	M.	43	7 months	4 ,,	—	Keeping well three months later.
W. C. A.	M.	53	At least 6 months	24 days	—	Keeping well three months later.
W. G.	F.	?	4 years	8 weeks	—	Keeping well four months later.
H. C. S.	F.	51	6 ,,	6 ,,	Improved	Very introspective; return of dyspepsia, from which she had suffered all her life; no recent news.
M. E. M.	M.	7	16 months	8-9 ,,	—	Keeping well seven months later.
J. E. F.	F.	56	Began 24 years ago	3 ,,	—	This patient relapsed about every two years. Too early for certainty; keeping well.
H. E.	M.	45	12 years on and off	?	—	Too early for certainty; keeping well.
R. C.	M.	54	12 months	5 weeks	—	Too early for certainty; keeping well.
W. B. S.	M.	58	13 ,,	—	Improving	Has been under treatment less than one month.
A. B. W.	F.	34	12 ,,	4-5 weeks	Recovery	Returning to India.
M. S.	M.	?	At least 12 months	3 ,,	,,	Well twelve months later; returned to China six months ago.
A. C.	F.	50	2 years	5-6 ,,	Much improved	Up and about; progressing well; severe case.
McC.	M.	56	? 20 ,,	—	Improved	No report for several months; had dysentery also (amoebic); remained weak and very anaemic.

before all support is removed. As a rule it has been found that the fuller diet provides all the calcium needed, and this element can be first left off, the regulator—parathyroid—being continued in full doses for another week or so. This is then reduced, and, as a rule, can be stopped in its turn a week to a fortnight later.

CASE IX.

W. F. W., male, aged 31. Foreign service: Calcutta 1913; China and Japan 1914; Red Sea, Bombay, and Persian Gulf 1915-16, and again in 1919. India, China, and Japan 1921 to December, 1923. He suffered from enteric fever and dysentery in 1918.

Sprue symptoms first appeared in October, 1923, with five or six copious, white, frothy stools daily. The tongue was sore, he complained greatly of flatulence, and he lost much weight. On admission to hospital on February 4th, 1924, he was put on calcium lactate 15 grains thrice daily, and parathyroid 1/10 grain twice daily. Blood examination showed red cells 4,210,000, white 6,000 per c.mm., haemoglobin 80 per cent., and ionic calcium 8.1 mg. per cent. In three weeks there was marked improvement, and the parathyroid was stopped. The blood, when examined two days later, gave normal ionic calcium (10.6 per cent.). The amelioration was maintained for four or five weeks, when the symptoms reappeared and the calcium was found to have dropped again to 8.5 per cent., and treatment had to be resumed.

In the next case the calcium lactate was given in full doses, but the parathyroid in only half the usual quantity. It will be seen that the improvement was marked, but a little slower as compared with some already recorded.

CASE X.

T. L. G., male, aged 28. In Egypt and the Dardanelles 1914-15; in India and Ceylon from 1916 to 1924. In 1923 he had an attack of malaria and suffered from "low fever" subsequently. In October, 1923, he began to pass whitish stools, not very loose at first, but later looser, copious, and frothy, and he lost weight—28 lb. in four months. Two months after the first signs appeared his tongue became sore and shortly afterwards ulcerated. From January 7th to February 15th he kept on a rigid diet of fruit and milk, and when he came to hospital on March 13th his weight was 126 lb. 11 oz.; there were ulcers on the inner surface of the lips and on the buccal mucous membrane. The ionic calcium was low (6.8 per cent.), the red cells 3,380,000, the white cells 5,800 per c.mm., haemoglobin 75 per cent. The calcium and parathyroid were started on March 18th, but the latter only in half doses. He was kept on milk for a fortnight and the diet then gradually, but fairly rapidly, increased. Five weeks later there were no aphthae but still some tenderness of the mouth and tongue; this in turn disappeared in another week. By April 10th the red cells had increased to 4,270,000 per c.mm., and the haemoglobin to 80 per cent., and by April 24th to 4,860,000 and 85 per cent. respectively. He left hospital after a stay of eight and a half weeks, having put on 15 lb. in weight, and "feeling well; no sore mouth, stools normal."

All the above-mentioned patients have been under treatment in England, but it is most gratifying to find that equally successful results are being obtained in the endemic foci of the disease. Over twenty have been reported to me, and the following four are selected for very brief notice because the reports were sent from different parts of the globe—one each from the West Indies, India, Persia, and China.

British Guiana.—E., male. Recovered after being in hospital in London for some months with dietetic treatment only, and was told he might return to his work. He left England in November, 1923, and a few days after sailing suffered from a relapse of his sprue, and arrived in British Guiana so bad, although he had kept

to milk throughout the rest of the voyage, that he wished to return at once to England for further treatment. His medical adviser, to whom I am indebted for these notes, suggested that he should try calcium and parathyroid. The first note after arrival, written on December 2nd, is, "Passed a stool, ivory-white"; and on December 3rd, "Stool the same; started calcium and parathyroid treatment at 8 p.m." He was kept in bed for a fortnight, and soon afterwards was able to take fish, meat, and chicken. The last note, dated December 30th, was, "Stool quite normal, brown; patient's weight 148 lb." (his normal was 152 lb., but on leaving England "in excellent health" it was only 135 lb.); and when his medical attendant wrote towards the end of January he stated that the patient "is now about his ordinary work, that of a manager of a large sugar estate, and is able to take his ordinary diet."

India.—Reported from Bombay and already recorded in the BRITISH MEDICAL JOURNAL of February 16th, 1924 (p. 306). In this instance the improvement was remarkably rapid, there being a distinct change for the better in three days, and the symptoms practically clearing within a fortnight. In this patient all the symptoms were present: "diarrhoea, loss of weight, increasing weakness, typical sprue tongue, with pain and burning in the mouth, and pale, copious, fermenting, very offensive stools."

Hong-Kong.—H., male. This man held a good position in China, contracted sprue, and came to England for treatment. He was treated in a private institution for many months by the usual methods; parathyroid and calcium being withheld. He then, against advice, returned to the East, being warned that he would probably not live to reach his destination. He was landed by stretcher from the ship, and his medical attendant there started the parathyroid and calcium treatment at once. "In three weeks he was up, and in five weeks resumed his work and has kept well since, taking ordinary food and feeling very fit."

Persia.—Lastly, a medical man in Persia wrote that he had been abroad for twenty-five years with the usual leave at intervals. In December, 1923, he was passing bulky, pale, clay-coloured, frothy stools, mostly in the early part of the day, and rapidly lost weight—18½ lb. in three weeks. He became very despondent when the symptoms continued unchecked by treatment, and anticipated retiring. He cabled for a supply of parathyroid. The result is best given in his own words: "I started treatment on February 27th, and on March 6th there was marked improvement. On the 22nd I was eating everything, and am now nearly up to my normal weight. I can do a hard day's shooting (aged 54) and keep my end up with anyone."

To make the story complete the following two cases, in which death ensued with symptoms of pernicious anaemia, are included. In one, the condition was of long standing and the parathyroid treatment was started only in the last few weeks of life, and even then an amelioration of some of the more urgent symptoms was obtained. In the other, severe anaemia appears to have been an early symptom; the sprue condition cleared up sufficiently for the patient (a medical man) to take ordinary diet and go about feeling so well that he wrote to the medical papers reporting his cure. On account of the persistence of the anaemia he was advised against returning to the East, but did so, and died on the way from pernicious anaemia, though the other (sprue) symptoms never returned.

(1) M. S., female, aged 50. Had suffered from sprue for some years and her weight had fallen from 126 lb. to 79 lb. She was very anaemic, red cells under 1,000,000 per c.mm., and the mouth very sore, in consequence of which she was unable to take nourishment, and was passing five or six motions daily—large, pultaceous, and frothy. A week after starting parathyroid and calcium the stools were reduced to three daily, and were darker and less frothy; and the ulcers in the mouth had cleared. She expressed herself as feeling much better and wished to get up, but was too weak. Her weight fell still further, and she died a few days later with all the signs of pernicious anaemia.

(2) D. W., male, aged 51. The disease, contracted in China, began acutely with sore mouth, typical stools, and progressive anaemia. On careful dieting the stools were reduced and the symptoms, with the exception of the anaemia, improved. In a month the red cells were only 2½ million per c.mm. and the haemoglobin 50 per cent. On attempting to increase the food relapse occurred, and he again slowly improved until he was able to take a fairly generous diet, so long as fats and untoasted bread were excluded. These immediately brought on a recurrence of symptoms. Fifteen months after the onset of disease he started the calcium and parathyroid, and wrote saying: "On the fourteenth day after, I felt so well that I took a huge meal to see what would happen—boiled pork, *very* fat, a large 'club' helping, followed by boiled suet pudding—and was none the worse. Since then I have eaten everything that I wanted to eat and have been none the worse!" After being in England about a year he wished to return to China, but, as the anaemia was not getting better, was advised against this step. However, as there had been no sign of a recurrence of the sprue symptoms themselves, he decided to go back. By the time he reached Singapore the anaemia was worse, and he died, shortly after reaching Hong-Kong, of pernicious anaemia.

Some of the cases in the accompanying table (p. 307) have been reported to me by professional men abroad, and I wish to put on record my thanks to all those who have so done, and also to those in charge of cases in London and the provinces by whose kindness I have been enabled to observe patients personally: To Dr. G. C. Low and Dr. P. H. Manson-Bahr, physicians to the Hospital for Tropical Diseases, the former for notes of control cases, the latter for according me the exceptional privilege of seeing his patients at any time; to Colonel C. Barry, I.M.S.(ret.), Major H. C. Brown, I.M.S.(ret.), Dr. O. Marriott, Dr. Chill (Singapore), Dr. McCracken (Shanghai), Dr. Scott (Teheran), Dr. Ozzard (British Guiana), Dr. Spence (Rangoon), Dr. Hathaway (New York), Dr. Collier (Oxford), and Dr. Fells (Bristol).

Summary.

A series of cases in progressive degrees of severity is recorded, comparing the results obtained under ordinary methods of treatment, expectant and empirical, with those treated with calcium lactate and parathyroid gland. Gratifying results are also being reported from the endemic centres of sprue in various parts of the world—the West, the Middle East, and the Far East.

The question of the ionic calcium and the value of its estimation is being made the subject of separate investigation.

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A NOTE ON PSITTACOSIS.

WITH REPORTS OF TWO RELATED CASES.

BY

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IT has long been known that parrots, both from America and Africa, especially when imported in large numbers, often die in high percentages, both during the voyage and after arrival. It is also well established that the disease from which they suffer can be transmitted to human beings, and that this occurs with fair frequency and probably oftener than is recognized. Apparently the first recorded epidemic was in 1879 (Ritter[1]), and every few years since then human epidemics have been reported in Germany, France, Italy, America, and this country. The specific bacillus (*B. psittacosis*) was isolated by Nocard in 1893 from the bone marrow of affected parrots, and in 1896, by Gilbert and Fournier, from human beings as well as parrots, in another small epidemic. It belongs to the same group as *B. enteritidis* Gaertner, *B. paratyphosus* B, and *B. aertrycke*. Its relations have recently been studied by H. M. Perry.[2]

In parrots the symptoms are loss of appetite, debility, drowsiness, drooping of the wings, and severe diarrhoea, sometimes associated with haemorrhage. Death may be preceded by convulsions. The mortality seems to be over 50 per cent. The disease appears to occur mainly, if not entirely, in newly imported birds, or those which have come in contact with them on their arrival. In fatal cases the bacillus is widely distributed throughout the body of the bird, and the dejecta are found to contain large numbers. It is apparently from this source that the disease is conveyed to human beings, and there can be no doubt that it was so contracted in the two following cases:

CASE I.

In the autumn of 1923 I was asked to see a lady with pneumonia in a town in Scotland. I had seen her previously at intervals since 1914. She had been originally a strong woman, but since nursing her father during a long illness, some years before, had been in poor health, and suffered from indigestion, anaemia, eczema, etc. These ailments were got rid of with some difficulty by the end of 1915, and except for a relapse in 1918 she had been increasingly stronger.

The present illness had begun five days before, with acute pain in the right side of the chest and a rise of temperature to 103°, but apparently no definite rigor. During these five days the temperature had ranged between 101° and 103.6,° pulse 108 to 120, respirations 28 to 36. When I saw her she was quite clear mentally, there was no cyanosis, the tongue was fairly clean and moist, the heart not dilated and sounds good, pulse 112, blood pressure (M.S.) 120. There was dullness with bronchial breathing at the root of the right lung and above it, with some crepitations and friction; lungs otherwise clear, very little cough, and no sputum. She looked unusually well for a patient in the fifth day

of pneumonia, and there seemed no reason to anticipate anything else. The temperature fell by crisis two days after my visit, but began to rise again in a few hours in step-ladder fashion. When I saw her again, on the eleventh day of her illness, it had reached 102°. She was obviously much more seriously ill, though still clear mentally; the tongue was very dirty, the pulse 124, and the heart feebler. The right lung had entirely cleared, but there was a fresh patch with typical signs at the left base. During the next few days she became steadily worse, the pulse reaching 160 and respirations 60 towards the end, temperature running between 100° and 102°, and she died on the fifteenth day of her illness. Throughout there were no abdominal symptoms, no distension, and no enlargement of the spleen.

CASE II.

A sister, younger by some years, and much more robust, was taken ill on the sixth day of her sister's illness, with a rigor, temperature 103°, pulse 120, respirations 32. When I saw her first, at the time of my second visit to her sister, she had a pneumonic patch in the front of the right lung, and another at the left base. The former had cleared up almost entirely six days later, the latter remained unaltered, but a fresh patch had appeared about the root of the left lung. She was never so seriously ill as the first patient, but the temperature ran much the same course, between 102° and 103° for the first week. There was no critical fall, but a fall by a slow and irregular lysis during the second week, with an evening rise to 99° for three days more. The lungs cleared slowly, and after the temperature had been normal for a week there was a pleural effusion on the left side with slight fever; 10 oz. of clear fluid were drawn off. This on culture proved to be sterile. Convalescence was slow and tedious.

In this case, again, there were no abdominal symptoms, very little cough, and no sputum. A feature of both cases was a depressed mental state, though neither was delirious at any time.

The second sister had been much with the first, and to begin with we thought one had infected the other, but attention was soon drawn to possible connexion of both cases with a parrot. The bird, a young African parrot, had been received from London almost exactly a month before the first case began. It suffered from diarrhoea all the time: the two sisters looked after it and cleaned its cage; no other member of the household came in close contact with it. It died the day before the first case began. On inquiry, it was found that, at the shop from which the bird came, numerous parrots—blue-fronted Amazons from South America—had died during July and August, and that officials of the Board of Agriculture had isolated pneumococci *post mortem*.

The symptoms of psittacosis in human beings are almost invariably such as I have described in these two cases. It is a striking fact that a disease which is obviously of adominal type in the bird is seldom associated with abdominal symptoms in the human being, but takes the form of an atypical pneumonia, with or without additional bronchitis. The onset is generally acute, often with a rigor, and the fever is usually continuous, highest during the first week or so, with a tendency to fall by lysis, and lasting, in cases which recover, from two to three weeks, sometimes a little longer. The charts published by Vickery and Richardson[3] are very like those of my cases. Mental depression is a marked feature, headache is common early. The spleen may or may not be enlarged, rose spots and even petechiae may appear, but do not seem to be common. My cases reminded me of paratyphoids with pulmonary complications, but in both the pulse was rapid throughout, corresponding more closely to the height of the fever than it usually does in enterics. There was no distension of the abdomen.

The mortality is generally stated as about 40 per cent., and the disease is naturally more dangerous in elderly or debilitated persons. There seems to be difficulty in obtaining the bacillus from the human being during life; it has been found in the heart blood after death. Agglutination in man is feeble, apparently not beyond 1 in 60, and soon disappears.

I have recorded these cases because of the fatal character of the disease and the difficulty in diagnosis. It is more than likely that the disease is more frequent than is supposed; it might easily be diagnosed as pneumonia, or influenza with pneumonia, in the typical cases, or as paratyphoid in the rarer cases without marked pulmonary involvement. Its occurrence in house epidemics and its relation with parrots are the obvious criteria.

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British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, BRADFORD, 1924.

SECTION OF MEDICINE.

Professor ARTHUR J. HALL, M.D., F.R.C.P., President.

DISCUSSION ON SMALL-POX, WITH SPECIAL REFERENCE TO DIAGNOSIS.

OPENING PAPER

BY

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SMALL-POX, with special reference to diagnosis, is our reference to-day; and for the privilege of your invitation to me, Sir, to open this discussion, I beg heartily to thank you.

That a topic which has been described as a Cinderella among her sister arts should appear on an important occasion like this is, if I may say so, an example of the prescience of those who preside over our proceedings; for in choosing this subject they have not only interpreted the signs of the times aright, as I shall venture to submit, but they have extended valuable support to some of us who need it. There are nowadays few heavier responsibilities in the daily practice of our profession than that thrown upon us by the necessity of having continually to be on guard against this particular disease; consequently diagnosis has come to be one of the most important items of our professional equipment; and in my judgement will remain so until we are able to discard it in the only way possible—that is to say, we must destroy the monster before we can lay down the sword, which meantime it behoves us to keep very sharp; we have now to expel small-pox completely from our shores before we can dispense with small-pox diagnosis; happily that is an achievement which I for one emphatically believe that we can and that we shall accomplish.

Two main heads will comprise my remarks:

I. The first item of our reference—namely, Small-pox: viewed as the disease, the mischief, in its general bearing. It is useful to take as comprehensive a view of the whole field as possible, in order that we may be the better able to see our individual parts in their due proportion, and understand the better how to carry them out.

II. The second item of our reference—namely, Diagnosis: viewed as the remedy, the weapon, in its application by any individual one of us; and I take it that a useful part of to-day's proceedings will be the opportunity which each one of us will have of re-exercising himself in the use of this weapon.

I. SMALL-POX IN ITS GENERAL BEARING.

To what main aspect of small-pox shall we devote our attention in the short time at our disposal? It would be interesting to discuss pathological phenomena, such as the acute fatty degeneration of the liver cells which occurs in the first few days of the illness; or the clinical and pathological significance of the haemorrhages which accompany the majority of cases of the European type; or again, there is ample material for debate, if mere debate were wanted, in a discussion about the two main types of the disease—the European and the American, the malign and the benign: the small-pox culture of the Ghetto, and the small-pox culture of the open country—were it not for the fact that the ablest brains of our profession have already settled that the latter is true small-pox.

But it seems to me that if we are to make real progress with our subject we must not wander in the pleasant pathological or clinical fields, but must surround ourselves

with what I may call the psychological atmosphere of small-pox, which, as in every human activity, comprehends all other branches of the subject.

May I illustrate my meaning? There used to be a tendency to regard the manifestations of small-pox as if they were those of the structure of a fossil, a flower, or a mammal; as of some object to be minutely studied, admired, recorded, left *in situ*, returned to, and cherished. But if ever I indulged in such a pursuit I have learned differently; and that from teachers from whom I have learned much—namely, from the robust matter-of-fact bluntness of my colleagues in practice whom I have met at consultations. They have told me, "Small-pox may be this, and small-pox may be that, but the way I look at it is this—the less I see of it the better I like it." To my thinking that is the correct psychological view to take of small-pox. It is not in the nature of a scientific specimen, beautiful and interesting; but it is a poisonous and devilish enemy, to be utterly put to the sword. Indeed, in the whole range of medicine I know of no disease which destroys the human form divine with more horrid defacement, with more utter brutality, with more savage deadliness, than does small-pox. It fully justifies the detestation in which it is held by patients and the profession alike.

May I lighten and give point to my remarks by a story or two? Some of the vivid photographs which you have seen here had been put out one morning lately for an evening lecture; when I went to speak, the senior hall attendant told me that his assistant had been looking at them; in consequence the lad had had no dinner, and, as yet, no tea.

A mother, who went to see her child dangerously ill from small-pox, told me afterwards: "Vaccination," she almost screamed, "why, that there vaccination, I would have had it over and over again for them poor creatures, with them things all over their poor bodies from head to foot, if that would have done them any good."

A strong and honest antivaccinator, in whose official care one of the valuable lives entrusted to his guardianship had been lost, told me with great sorrow and a candour that compelled respect that his view of small-pox had been completely changed by what he had *seen*; he himself led the way in being vaccinated and taking all necessary measures; but for which small-pox, which had got right in among a close and unvaccinated community of 1,000 souls with an initial well spread outbreak of 25 cases—sown right among them before its real nature was recognized—could hardly have taken a toll of less than 100 deaths. Owing to his leadership when faced with the *facts*, and his fearless acceptance of skilled advice, the cases were limited to 49 only, and the deaths to 15 only.

Beyond all doubt the above tersely expressed view of small-pox is psychologically correct: it is a repulsive and detestable nuisance, which we want not only to see little of, but to banish entirely.

Need we therefore abandon our usual technical methods of examining, exploring, and analysing the morbid phenomena of the mischief before us?

By no means. Just the reverse. Our subject requires to be studied with just as much attention and close scrutiny—only with this single object in view: that it is an enemy to be destroyed as rapidly and completely as possible; and therefore we must direct our attention to the appropriate phenomena. We want to know how it defends itself, so that we may strip down its defences; we want to know what are its vulnerable points so that we may attack them; we want to know how and where it propagates and breeds, so that we may destroy it *in ovo*; we want to know how to recognize it quickly and to a certainty so that it shall not escape us for an instant. It is in this manner that I submit we should study small-pox, so that the word may bring always into our *minds* the picture of an enemy whom to think of is at once to prepare to attack. Clearly we cannot now pursue all these lines of study; I will therefore select a few, and will endeavour to direct my remarks to the exposure of small-pox, and to the display of its movements in their true light.

What has especially protected and still protects small-pox in this country may be summed up in one word, misunderstanding. There has been thrown about it by assiduous suggestion and misrepresentation—whether witting or unwitting matters little, since it is misrepresentation all the same—on the part of amateur and academic instructors, such a cloud of untruth, unreality, and nescience, that small-pox has been implanted deeper when it could have been uprooted, and has been reinforced when it could have been destroyed. It is one of our duties to tear down this cloak and expose the nakedness and foulness of the mischief behind it; for, be assured, once small-pox is so displayed, not with the specious colour and false gloss often and deceitfully put upon it, but in its bare hideousness as it really is, it will have short shrift indeed.

We have already indicated how that may be done in the above-related stories, such as could be multiplied a hundredfold by those who hear me; and it is such tales as those that testify so tersely and trenchantly to the truth. And we can carry on this line of analysis and exposure by referring our academic friends who revel in doctrinaire discussion at a distance, to actual cases and to observation in the field; or at least to authentic photographs.

We must press on now to uncloaking another misapprehension which helps to obscure and protect small-pox; it is one which intimately concerns ourselves. For this purpose, Sir, be pleased to regard the table before you, upon a few salient points only of which our time allows us to touch.

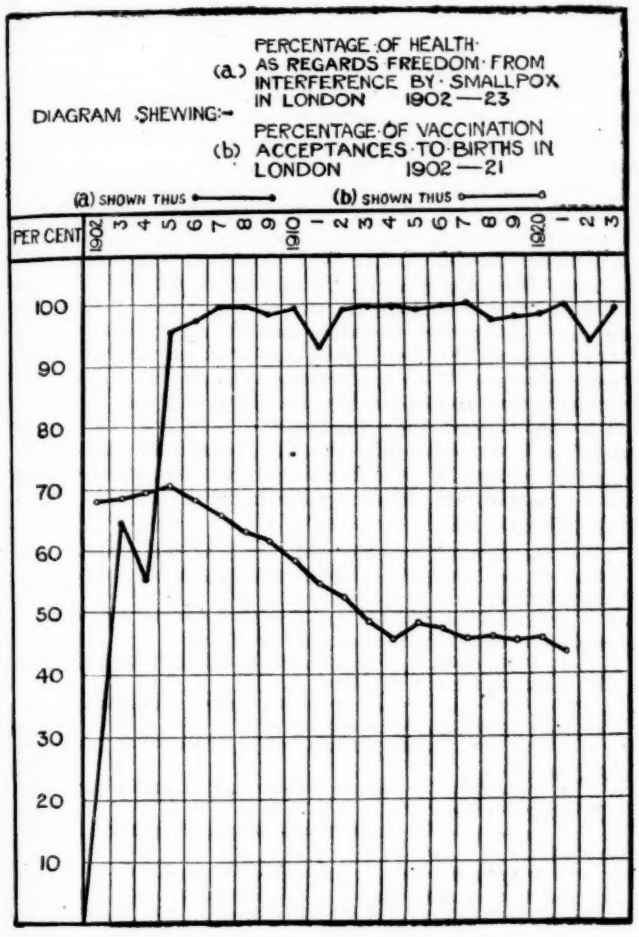
Table of Small-pox, 1841–1924.

Year	Deaths from Small-pox. England and Wales.	Deaths from Small-pox. London.	Admissions to M.A.B. Hospitals.		Year	Deaths from Small-pox. England and Wales.	Deaths from Small-pox. London.	Admissions to M.A.B. Hospitals.	Percentage of Infant Vaccination Acceptances to Births in London.
1841	6,368	1,053			1883	957	136	598	
1842	2,715	360			1884	2,234	1,236	6,363	
1843	Figures	438			1885	2,827	1,317	6,146	
1844	not	1,804			1886	275	20	99	
1845	avail-	909			1887	506	9	56	
1846	able	257			1888	1,026	9	62	
1847	4,277	955			1889	23	1	5	
1848	6,903	1,620			1890	16	3	22	
1849	4,644	521							
1850	4,665	499			1891	49	8	63	
					1892	431	29	325	
1851	6,997	1,062			1893	1,457	186	2,376	
1852	7,320	1,150			1894	820	89	1,117	65.4
1853	3,151	211			1895	223	55	941	
1854	2,808	694			1896	541	9	190	
1855	2,525	1,039			1897	25	16	70	
1856	2,277	531			1898	253	1	5	53.8
1857	3,936	156			1899	174	3	18	58.8
1858	6,460	242			1900	85	4	66	61.7
1859	3,978	1,158							
1860	2,713	898			1901	356	229	1,743	64.3
					1902	2,464	1,314	7,842	68.0
1861	1,290	217			1903	760	13	355	68.9
1862	1,579	366			1904	567	25	449	69.7
1863	5,891	1,996		Cases	1905	116	10	53	70.7
1864	7,624	547		certi-	1906	21	0	27	68.1
1865	6,361	640	First	fied in	1907	10	0	2	65.9
1866	2,977	1,391	M.A.B.	Eng-	1908	12	0	1	63.0
1867	2,467	1,345	Hospital	land &	1909	21	2	15	61.7
1868	1,944	597	opened	Wales.	1910	19	0	5	58.4
1869	1,482	275	Dec. 1st,						
1870	2,547	973	1870.	293	1911	23	9	70	54.8
				124	1912	9	1	5	52.2
1871	23,062	7,912	13,721	116	1913	10	0	1	48.5
1872	19,022	1,786	2,359	66	1914	4	0	1	45.8
1873	2,303	113	174	92	1915	13	3	11	48.0
1874	2,084	57	112	151	1916	18	0	1	47.4
1875	849	46	89	7	1917	3	0	0	45.6
1876	2,408	736	2,134	64	1918	2	0	36	45.7
1877	4,278	2,551	6,516	297	1919	25	5	27	45.0
1878	1,356	1,417	4,558	263	1920	29	4	18	45.6
1879	536	450	1,628						
1880	648	471	1,982	335	1921	5	0	2	43.1
				973	1922	27	20	65	
1881	3,098	2,367	8,551	2,483	1923	7	1	11	
1882	1,317	430	1,799	1,500	1924*		0	0	

* Four months.

Among notable years you will observe 1871 and 1872; when Germany fell on France she took a bad dose of small-pox herself, and, by driving to our shores many small-pox infected refugees, incidentally deprived us of the 40,000 of our people who died of small-pox in those two years. Another notable year is 1902, when London spent on her 10,000 cases no less than £500,000 on hospital treatment alone—£50 a case. A notable year for London is 1904, in which was first established the system of medical team work which has synchronized with the small score compiled

by small-pox in the last twenty years. This mass of figures, however, being too heavy to be rapidly appreciated, I have had some of the most striking of them set out on simple curves.



The lower curve shows the percentage of London infant vaccinations. The upper curve shows the level of health in London in respect of freedom from interference by small-pox. This last-named feature is one to which I attach much importance; it requires a few words of explanation. The true end and object of our work is to raise what may be called the antivariolous health of our community to the highest possible point. Just as a general in the field cared little about the actual number of cases of scabies in his division, and much for the number of scabies-free men whom we could give him for his operations, so at the present time competent authorities are less interested in the actual small-pox returns, and more concerned with the freedom of their peoples from the occurrence, the menace, and the cost of small-pox; and therefore it is for us to fix our minds, not on a zero of small-pox, but on 100 per cent. of small-pox free efficiency—that is, health. That is the point. And this 98 or 99 per cent. level of freedom from small-pox is extremely difficult in existing circumstances to keep up, requiring tireless vigilance and unending work; it is as difficult to maintain as to extract the last two knots of speed from a steamship, and for similar reasons.

In constructing this curve there has been adopted a rough arbitrary scale in which 1,000 small-pox cases in a year represent a zero of health; and no small-pox cases in a year represent 100 per cent. of health; 100 cases in a year therefore represent 90 per cent., and 65 cases in a year represent 93.5 per cent. of health, for instance.

What, then, strikes us when we look at those two curves? This: that the chief antidote to small-pox—namely, vaccination—is much less used than formerly; and at the same time our freedom from small-pox stands higher than ever it did. It appears that the remedy, an undeniably potent remedy, has fallen into partial disuse, but that the patient's health has improved. It is as if a malaria patient became robust when the chief antidote to his disease was discontinued.

What can be the explanation? Can it be that small-pox itself has become less virulent and less frequent? That is not so: 93,000 deaths from small-pox took place in British India alone in one year (1918); that means nearly half a million cases. Competent observers assert that a rough estimate of 1,000,000 cases of small-pox in the world every year is a modest estimate. Can it be that small-pox does not come to our shores as of yore? We know that it does; so that does not help us.

Our old and hard-worked friend, sanitation, may perhaps account for this fall in small-pox, in the minds of some. But let us ask ourselves: What striking Sanitary Act, what sanitary innovation, had its inception in 1904, and has been in operation ever since? None. That explanation does not suffice.

Is it possible that some factor, not fully disclosed, has been at work to influence the situation? It is not only possible, but it is the fact. It is here that we shall come upon the truth. Critics tell us that the mighty stewardship of the British Empire has been acquired in a fit of absent-mindedness: whether that be true or not, it certainly is the case that our profession has tackled and defeated small-pox without realizing its achievement. That partly arises from the fact that vigilance and determination cannot be placed upon a chart; nor can team work and loyalty be exhibited in a balance sheet. But that does not mean that they have not existed, and been operating. We know how enormously these factors always count; and in this work, too, they have carried the day. I can state with authority and intimate personal knowledge that the one factor by which small-pox has been pulled down, and is now being held down, is the team work of our profession and the voluntary civic spirit of its members. That is the truth.

Let us have the results in a nutshell. In London this team work was begun in 1904. Compare the figures before and after that year. Add the small-pox cases in London during the nineteen years before 1904—they total 15,804; add those of the nineteen years since 1904, during which time we have worked as one team in this matter—there have been 351 only. That gives us an abatement of 15,453 cases of small-pox; and on a basis of costing at £200 a case, it represents a saving in that time of £3,090,600 of public and private moneys. That is no mean achievement.

Not for one moment would our profession claim that it has done this by itself. Nothing of the kind. We must take stock of the situation fairly, avoiding exaggeration on the one hand and self-depreciation on the other. Let us take a grip of the whole position as briefly as we can. In this way: Small-pox is erroneously believed by large numbers of the laity to be almost a thing of the past in this country. The exact opposite is the fact. The truth is that small-pox abounds in the world at large—to an extent which is not exactly known, but which is estimated to amount to millions of cases every year; it is therefore as dangerous as ever to the people of these islands, whose decreasing use of vaccination has made them individually almost defenceless to small-pox, and has much increased the general risk; which in turn has only been countered by the continued shepherding efforts of a slender cordon of medical officers, their colleagues and assistants, to whose team work the community owes almost entirely its present and temporary freedom from small-pox; but for whom small-pox would again sweep in as calamitously as ever, because there is nothing else to stop it; a final result which, sooner or later, is absolutely inevitable, unless the community comes to understand the truth and to act upon the truth, and to protect itself by means of adequate vaccination. That is the situation.

Commenting on this lately a valued friend of mine observed, "Then it is a hopeless position; for we shall never get a Government that will tackle vaccination; they dare not, and they cannot." He spoke the absolute truth; yet not the whole truth, for he was unconsciously labouring under the familiar delusion that a Government is an all-powerful group, instead of being, in point of fact, our agents over whom we have lost control; and over whom, incidentally, we have to regain control.

Let us stand back a little from this problem and look at it anew, and from a distance; and let us consider fundamentals. An island suffers from a pest; its inhabitants, the citizens, are sick of it in a double sense, and are determined to have it out. Very well. They have long had the task in hand. They have entrusted part of the task to certain standing authorities which they themselves have set up, as one item among the many referred to them to complete. But this has not been completed. Why? In brief, for this reason—because those standing powers cannot complete it, and as at present constituted will never be capable of completing it. That is the point. So far my friend was right.

But the pest remains; and the task, the service of expelling the pest, also remains. Is this service, then, to be abandoned? Is our determination to fail? By no manner of means, if only for this reason. The commission entrusted to the various standing authorities to deal with small-pox is only part of our general civic effort against this disease; the rest, and a big rest it is, is known under the head of voluntary effort. The real fact is this—that the citizens as a whole, of whom we are part, have charged part of this work upon the organized civic authorities and part upon our own voluntary and less rigidly organized effort, and we are now endeavouring to co-ordinate the whole, to watch its working, and to develop its several parts as required; for in one way or another the service must be completed; it is coming to be widely felt that it is utterly intolerable for the free people of the very country that produced a Jenner and a Ricketts to lie down any longer under this ridiculous, uncivilized, self-inflicted, and utterly abominable intruder. If you doubt me, ask any gathering of women and hear what they say; they are perfectly right.

We have spoken of citizens, and indeed this clearance of small-pox is a civic task, upon which we are here engaged to-day in our capacity as citizens. I was glad to see that a leading member of our profession recently gave us a reminder of this important truth—that we are citizens as well as doctors, and have important civic duties. Here is one of them: the clearance of small-pox. It is a duty which others have dropped in abandoning vaccination; which we did not seek; which we did not avoid; which we did not fear; which we have educated ourselves to understand; which we have shouldered; which we shall not drop; which we shall obstinately pursue; which we are determined to complete. Why? Perhaps because we are of those who, if they do not lightly accept a task, never lay it down, if they can possibly help it, until it is done. That may be one reason; there certainly is another. We are not only citizens in the matter, but we are citizens with special knowledge, to whom the rest look and rightly look to lead the way. In my judgement that is a request which we cannot possibly refuse. It is a call which we are bound to accept and honour.

Jenner has led the way by his work on vaccination; Ricketts has led the way by his work on diagnosis: it is for us to follow up their leadership, and give final effect to what they have begun and others have carried on. Above all, we should work on a plan. Here is one, fourfold:

1. To hold small-pox.
2. To educate ourselves and others thereupon.
3. To prepare to throw it out.
4. To throw it out.

That is in fact the plan upon which the work in London has long been carried out. At the moment we are holding small-pox, and must continue to hold it. And one supreme weapon for holding it is accurate diagnosis. Upon the detail of that, therefore, I will submit a few notes as briefly as possible, apologizing for their possible resemblance to pemmican.

II. Diagnosis.

Under this, the second item of our reference—namely, small-pox diagnosis—I will give simply and shortly just the items which personally I have found most useful in my own work. They have been under trial for about thirty years on about 15,000 cases. If anyone finds them of service I would advise him nevertheless to modify them as may be necessary for his own requirements and system.

Diagnosis, generally speaking, may be said to be the discarding of the unimportant and the concentration upon the important features of a case with a view to its complete recognition. To be successful the process must be methodical and complete, so as to miss nothing; easily grasped, easily remembered, as brief as possible, simple, practical and quick in its application—that is to say, capable of being worked in difficult circumstances, such as in the hurry, noise, responsibility, or other distractions which may arise in general practice; for obviously small-pox is not a disease that can await removal to the quietude and deliberation of a consulting room.

My remarks will comply with as many of these requirements as possible; and I hope that what I am going to say will form the basis of a scheme which will hang naturally and easily together, so as to be carried in the memory without reference to notes.

First comes a question of four words, on which hangs all the rest. That question is, "Can this be small-pox?" In rather fuller phraseology it may be expressed, "Can this case confronting me, the diagnosis of which is not fully cleared up—can this possibly be small-pox in one of its very numerous forms?" In truth there is hardly a condition of disease which may not be simulated by small-pox.

It is understood that this is a question to be put to oneself and to nobody else—a quiet reflection. How then should we proceed? We should split up that one question into its components, following the natural stages of small-pox: Can this case be—

(*a*) Small-pox before the rash has come out, when it may have to be distinguished from influenza, acute rheumatism, lumbago, etc.?

(*b*) An initial rash of small-pox, liable to be confused with scarlet fever, measles, and so forth?

(*c*) Haemorrhagic small-pox, requiring to be distinguished from purpura and petechiae?

(*d*) Small-pox in the papular stage, simulating acute papular erythema, for instance?

(*e*) Small-pox in the vesicular stage, resembling pemphigus or varicella?

(*f*) Small-pox in the pustular stage, recalling acute pustular dermatitis?

(*g*) Small-pox in the crusting stage, suggesting chronic eczema?

(*h*) A patient recently scarred with small-pox? This is a condition which forms a not uncommon trap, the detection of which may be of little avail in the case of the patient himself, but of immense value to the life and welfare of his friends.

Running over these eight touchstones in one's own mind may be sufficient to dismiss all possibility of small-pox, and may settle that the case is something entirely different.

Suppose, however, that small-pox cannot be eliminated. How then should we proceed? In matters of detail, by two ways especially: First, by ensuring a thoroughly good light; and secondly, by seeing as much of the skin in one view as possible; the patient should be stripped of ordinary clothes to the waist, and decently and warmly clothed in blankets or similar coverings. That will give a fair chance of the actual lesions present being fairly observed. These are homely but most important points.

What phenomena are we, then, going to discard as relatively unimportant and what are we specially to note? We may cherish old friends but must not expect too much of them; it is not fair. Among these I would include (1) shottiness, (2) umbilication, (3) uniloculation, (4) the "cropping" as of chicken-pox, (5) the rash being in different stages, (6) the rash occurring on the soles of the feet, (7) spots on the palate. I venture to discard those phenomena either in part or entirely. Not that they do not occur; they do occur, but they are not sufficiently distinctive when distinction is urgently called for.

Let us, then, proceed to the four groups of clinical phenomena which, to my thinking, include the master cards. They are:

1. Prostration.
2. Distribution (on the skin).
3. Localization (in the skin).
4. Maturation.

It is not in place for me to discuss these here, and I will add only the briefest comment.

1. *Prostration* is not an absolute sign of small-pox; nor does its absence give a complete negative to that disease;

but it usually is a reliable sign, especially when considered in proportion to the density of the rash. A copious rash preceded by complete absence of prostration is a strong argument against small-pox.

2. *Distribution*, as a group of evidence regarded by itself, is the soundest of all. Its key is that the rash of small-pox favours the irritated and shuns the unirritated surfaces. To follow up the subject it will be necessary to consult textbooks and treatises.

3. *Localization*, or depth in the skin. This is obviously important. It is specially useful to regard those lesions which occur on the tenderer portions of the skin, such as over the axillae, chest, or flanks; relative depth in the skin is more readily appreciated in such situations, and by rolling a loose fold between the finger and thumb.

4. *Maturation*. This simply means that the progress or standstill of a rash clears up many a doubtful case. Of course it is not suggested that a possibly infectious case should be kept unisolated pending development of rash. Rather this sort of evidence is useful. A rash which has only required two days to pass from its first appearance to a fully pustular condition cannot be small-pox; for small-pox does not proceed at that rate. A rash which is papular and stationary for three or four days cannot be small-pox, for small-pox always develops in some fashion. A haemorrhagic case is often clearly disclosed by the supervention of the focal—that is, the papular—rash; that is only to say again that the rash of small-pox develops and matures.

To my thinking a suspected case of small-pox should be analysed under each of these heads separately, and the respective findings recorded and compared. The balance of evidence should then be weighed and recorded. Seldom then is the truth missed.

History is corroborative evidence, and should be so placed and regarded—after careful appreciation, of course. Events observed by a medical attendant, a nurse, or a competent mother may be invaluable; whereas the story told by a man's wife who does not wish him to lose his job, or of the mother who will sacrifice everything to keep her child at school, is apt to be less reliable.

But unquestionably the method is not only scientific but self-educational, which studies the actual pathological phenomena in view as intently as possible, which reads the case as well as it can be read, which deciphers the hieroglyphics, which takes the direct evidence, before listening to the history and the hearsay evidence.

It is often said that the lack of clinical material is a great difficulty in studying small-pox diagnosis. I do not entirely agree. I know that there are difficulties, but good stereoscopic photographs correctly used and well demonstrated give a surprisingly good working foundation for small-pox diagnosis; as a result of which many a man who has never previously seen a case of small-pox has been enabled to recognize the papular rash on the first day. Then again, we do not make half enough use of the clinical material which we do possess; organization is here required for its due and legitimate study.

But, these difficulties apart, there is one fertile source of study open to all who wish to improve their small-pox diagnosis. I mean our abundant cases of chicken-pox. It can hardly be doubted that small-pox and chicken-pox are cousins, even if hundreds of thousands of times removed—so close are many of their superficial resemblances; and anyone who is in earnest in seeking to heighten his proficiency in small-pox diagnosis may derive great advantage from testing some such scheme as the above upon every case of chicken-pox in his practice; especially chicken-pox in the adolescent and adults, in whom its features are commonly more regular and more easily observed, particularly as regards the distribution.

This much should be added: small-pox diagnosis in my experience is a most difficult art, and few of us have opportunity of becoming highly proficient therein; this is evident when we reflect that the 6,000 of us in London have at present an average of about three cases in every two months on which to exercise our skill; and that those eighteen or twenty cases a year are commonly whisked away within a few hours of their appearance. To attain real proficiency is not a practicable proposition for any but a few. On the other hand, there is strong reason why every single one of us should have that sound knowledge of the groundwork of small-pox diagnosis that will enable, and indeed has enabled us of late years to *arrest* the great majority of cases.

Herein lies our chief encouragement. "Judge," said Demosthenes of Philip of Macedon—"Judge what he will do by what he has done." An expression as true as it is pithy. Let us judge what we shall do by what we have done. We have succeeded to a large extent; we shall succeed altogether. That is one reason why I am so desirous of establishing the truth in regard to what our profession has already done to drive and keep small-pox down. From that very success let us take heart of grace and strongly push ahead.

This is every man's work, to take his share in finally disposing of a disease which should not be tolerated among us for a single instant; the continuance of which is no compliment to our civic organization and common sense; for consider, we have had to put up with nearly 5,000 cases of small-pox in England and Wales in these last eighteen months. It is for each of us to tackle it in his own sphere, and for us altogether to develop our team work so that we may lead the way in sweeping it out of the country.

Let me fitly end my contribution with a striking passage from the Hunterian Oration of 1907 by the late Sir Henry T. Butlin, who in the last words here quoted doubtless had in mind many others of our profession besides John Hunter:

> "Human beings may fairly be divided into three classes in their relation to the affairs of this world.
>
> "First are they who see that a thing is wrong; they are very numerous, especially in their relation to politics, and their opinion in these days is frequently referred to as the opinion of 'the man in the street.'
>
> "Next are they who see how what is wrong should be put right. They are not so numerous as those of the first class, and for one who sees clearly there are at least many hundreds who only dimly see. And of those who see clearly few are capable of putting the wrong thing right. Few of them, indeed, have the inclination to do so, and of those few still fewer are capable of doing so; they are for the most part talkers, not workers.
>
> "And third are they who set to work, diligently and with determination, to correct the wrong. They are not necessarily the persons who first discerned the wrong or who saw clearly the means by which the wrong might be corrected. Sometimes, indeed, they are merely workers, what are termed 'humble instruments,' but the work which they accomplish in this world and for the good of man is greater than words can tell."

DR. C. KILLICK MILLARD,
M.O.H. Leicester.

DR. WANKLYN divides his paper into two sections: (1) small-pox in its general bearing; (2) diagnosis. I will comment on the second section first. Like all that Dr. Wanklyn has written on this aspect of the subject, this part of his paper is highly practical and valuable, and I only regret that he did not devote more space to it. I entirely agree with him as to the fundamental importance of correct diagnosis in the control of this disease. More attention is devoted to this subject in the medical curriculum than was formerly the case, but there is still much room for improvement. In view of the fact that there is no disease in which failure on the part of a medical practitioner to recognize, or even to suspect, its true nature is fraught with such tragic consequences to the community, it is surely not unreasonable to contend that no medical student should be turned loose on the community as a qualified practitioner until he has given specific evidence that he has acquired proficiency in this subject, sufficient at least to enable him to suspect small-pox whenever he may happen to meet with it.

As Dr. Wanklyn rightly points out, the lack of clinical material, now that small-pox has become such a comparatively rare disease, is a difficulty, though by no means an insuperable one. I cannot doubt but that ways and means of learning small-pox would be found if only small-pox were made a special subject and that at least one question were asked on it in every final professional examination. A long overdue reform is the transference of the precious time at present devoted to "learning vaccination" to learning small-pox, which to-day is of infinitely greater importance. As a matter of fact, I think most will agree

that a special course on vaccination is quite unnecessary, provided the student be well grounded, as of course he should be, in the theory and practice of asepsis.

As regards the practical side of diagnosis, I agree with Dr. Wanklyn as to the comparative uselessness of the old textbook diagnostics, "umbilication," "shottiness," "uniloculation," "cropping," and the presence of lesions on the palms or soles or palate, which students apparently are still largely taught to rely upon. In my experience they are a source of much confusion and uncertainty, and of very little real value.

Dr. Wanklyn enumerates the four groups of clinical phenomena which he considers of real importance—namely, (1) prostration, (2) distribution, (3) localization (in the skin), and (4) maturation. I agree that the most important is distribution. In the vast majority of cases distribution will settle the diagnosis as between small-pox and chicken-pox. Moreover, as careful enumeration is independent of the personal factor, I regard the distribution test as quite the most valuable for the general practitioner. I would describe the test as follows:

Distribution Test for Distinguishing between Small-pox and Chicken-pox.—(1) Ignore the head and neck. (2) Divide the rest of the body into (*a*) trunk, and (*b*) limbs. Then, if the lesions on a careful count be more numerous on the limbs, the case is almost certainly one of small-pox; whereas if they be more numerous on the trunk it is almost certainly chicken-pox. It is true that there are a few cases in which the lesions may be almost equally divided, and in order that any error may be on the safe side—that is, in the direction of suspecting small-pox even though the case be one of chicken-pox, rather than vice versa, it is well to weight the test by counting the buttocks and shoulders as being part of the limbs; though in reality I believe that these regions should be counted with the trunk if the test is to give the greatest proportion of correct results.

I know of no other single test of equal value to this distribution test, though, of course, before the final decision be made every point should be considered. I will only add that whilst cases will occur that will puzzle even the most expert, yet, speaking generally, and apart from bacteriological tests, in no other zymotic disease in this country can a positive diagnosis be arrived at in a larger proportion of cases. In other words, given the necessary knowledge, in no other zymotic is diagnosis so satisfactory.

Turning now to the first section of Dr. Wanklyn's paper—namely, small-pox in its general bearing—to which he devotes the greater part of his space, I find many points with which I am unable altogether to agree. I fear that this is my fault rather than Dr. Wanklyn's, for he is nothing if not strictly orthodox—a vaccination "die-hard" of the staunchest type!

With small-pox again present in Leicester after being absent for eleven years, I necessarily speak with a sense of due responsibility. I cannot, of course, foretell what the future may have in store for Leicester or, for that matter, for any other city; but in everything I have said or written on the question of small-pox and vaccination during the past twenty years I have always had in mind the probability that the disease would be introduced into Leicester from time to time, as in the case of other cities, and that more or less spread of the disease would result, as in the case of other cities. I have never been so foolish as to suppose that Leicester bore a charmed existence. Let me then repeat at the outset, what I always make a point of saying—namely, that whenever small-pox visits Leicester it demonstrates unmistakably the power of vaccination to protect the *individual*. But it also demonstrates, as I believe, that the orthodox view as to the great value of infant vaccination in protecting the *community* has been overestimated. Perhaps it would be more correct to say that it also demonstrates that the supposed danger to the community of the absence of the "protection" of infant vaccination has been overestimated.

Dr. Wanklyn states that small-pox is a "poisonous and devilish enemy," and that in the whole range of medicine he knows of "no disease which destroys the human form divine with more horrid defacement, with more utter brutality, with more savage deadliness, than does small-pox." Such a lurid description is, I admit, fully justified as applied to the severe or Asiatic strain of the disease; but if it be applied to the American or alastrim strain of small-pox which has prevailed in this country during the last few years, then it is a clear exaggeration. Alastrim small-pox can hardly be said to be either a disfiguring or a deadly disease, and hitherto it has shown little if any tendency to change into the Asiatic type. Although from the scientific point of view I have no hesitation whatever in regarding it as true small-pox, yet from the practical point of view it is a very different proposition, and personally I doubt if it is quite disingenuous to trade upon the name small-pox in the way that is so often done. Dr. Wanklyn's story of the mother who said that she would gladly have been vaccinated many times if it would have saved her child from getting small-pox can be paralleled by stories of parents who, when they have seen cases of alastrim small-pox, have said that if *that* be small-pox they would much sooner have it than some of the bad arms they have seen after vaccination.

Dr. Wanklyn points out that in spite of the fact that the "chief antidote" to small-pox—namely, vaccination—is much less used than formerly, our freedom from small-pox stands higher than ever it did. He says: "It appears that the remedy, an undeniably potent remedy, has fallen into partial disuse, but that the patient's health has improved." He asks what can be the explanation, and points out that it is not that small-pox has become less virulent (this is hardly correct as applied to the country as a whole—C. K. M.), or that the disease no longer comes to our shores. He cannot admit that it is in any way due to "sanitation," and concludes that it is to be attributed to the method of dealing with small-pox by "team work," by which he means presumably the modern method of improved diagnosis, prompt notification, immediate and effective isolation, and the hunting up, vaccinating, and surveillance of contacts. If Dr. Wanklyn will look up the word "sanitation" in almost any standard dictionary I think that he will find that it is not unduly straining the meaning of the word to make it include all the preventive measures indicated above, but I have no wish to argue about the meaning of a word. I would, however, suggest that it looks, on Dr. Wanklyn's own showing, as if modern preventive measures were much more successful in combating small-pox than the measure on which we formerly relied—namely, infant vaccination.

Dr. Wanklyn makes a calculation as to the amount of saving, expressed in terms of money, which the employment of these improved measures for dealing with small-pox have effected in London alone during the past nineteen years by reducing the incidence of the disease; and on the basis of 15,800 less cases, *at £200 per case*, he estimates the saving at over £3,000,000! I have no wish to damp his enthusiasm for what is undoubtedly a splendid piece of work, but I cannot help suggesting that his estimate is a little too liberal. I can understand a single case of small-pox costing as much as £200 where the circumstances are exceptional, but to take this as an average over 15,000 cases seems a little wide of the mark. Probably an extra cypher has crept in unawares; £20 per case, and a total of £300,000 would surely be nearer the mark.

In conclusion, it is not very clear what Dr. Wanklyn thinks the future has in store. In one part of his paper he says that the decreasing use of vaccination has made the people of these isles individually almost defenceless against small-pox, and that as the final result, which is "absolutely inevitable unless the community protects itself by adequate vaccination," small-pox will again sweep the country "as calamitously as ever." Yet towards the end of his paper, apparently overlooking this gloomy prophecy, he says enthusiastically, in speaking of the success which has attended improved diagnosis, "Let us judge what we shall do by what we have done. . . . We have succeeded to a large extent; we shall succeed altogether." It is, he says, for us to "develop our team work so that we may lead the way in sweeping it [small-pox] out of the country." To which sentiment I, personally, say "Amen." But which of these predictions does Dr. Wanklyn really wish us to accept?

But these are only minor points. With very much of Dr. Wanklyn's paper I heartily agree, and I take this opportunity of expressing my appreciation of the great

service rendered by Dr. Wanklyn to the community in the prevention of small-pox by his writings and teaching on small-pox diagnosis.

DISCUSSION.

Dr. R. P. GARROW (M.O.H. Borough of Chesterfield) referred to the prevalence during the past three years of a mild form of small-pox in Derbyshire. In October, 1923, the infection was introduced into the borough of Chesterfield, and since that date, in spite of all the orthodox preventive measures being taken, the disease had continued to spread in the borough amongst those who refused vaccination. To date there had been 500 cases. He understood that in Derbyshire there had been something approaching 2,000 cases without a death from small-pox in three years. He was of opinion, from a careful study in hospital of the 500 cases from the borough of Chesterfield, that this mild disease was a clinical entity distinguishable from small-pox on the one hand and chicken-pox on the other. While he did not believe that an individual case of the mild disease could be distinguished clinically from an individual case of the same severity occurring in an outbreak of virulent small-pox, nevertheless the two diseases, looked at as a whole, presented so many and such striking differences that an outbreak of the mild disease could be easily and rapidly distinguished from an outbreak of the graver disease. He indicated the chief points of difference as follows: (1) Extreme mildness of the average case. The fact that there was no death from small-pox in his series of 500 cases did not convey an adequate impression of the mildness of the disease, for no case in his series could be said to be so ill from small-pox as to give rise to any anxiety as to the outcome of the illness. (2) Prostration, one of Dr. Wanklyn's master cards, was not seen in any case. (3) Other evidences of profound toxaemia such as prodromal rash and haemorrhage were also entirely absent from the series. (4) Pitting after recovery was rare, and consisted of fine foveation on the forehead, nose, and cheeks. (5) The pyrexia of the primary toxaemia was lower than that of virulent small-pox, and ranged from 100° to 103° F. (6) Suppurative fever was absent in the great majority of cases. (7) The symptoms of onset were different. The gradual onset with headache, dizziness, and aching limbs contrasted with the sudden onset with rigor, vomiting, and lumbo-sacral pains in virulent small-pox. (8) The eruption consisted of lesions which were on an average smaller and more superficially situated than those of virulent small-pox. They were unilocular, their evolution was more rapid, they failed to pustulate completely, but dried up into amber-like beads, varying in size from that of a pin's head to that of a split pea, and in colour from pale straw to deep amber. (9) A most interesting difference was the chronological relationship of the appearance of the eruption to the primary toxaemia. Whereas in virulent small-pox the eruption appeared fairly constantly in the middle of the primary toxaemia about its third or fourth day, in this mild disease the eruption appeared immediately *after* the primary toxaemia or was delayed for several days, so that an interval of complete intermission of all symptoms lasting from one to four days was observed between the end of the primary toxaemia and the appearance of the eruption in about a third of the cases.

[Dr. Garrow showed the following table, which indicates the day of illness on which the eruption appeared in the 500 cases:

Days from Onset to Eruption.	No. of Cases.	Days from Onset to Eruption.	No. of Cases.
No illness	51	6	81
2	13	7	47
3	60	8	35
4	110	9	7
5	93	10	3
			173

From this it will be seen that in no fewer than 173 cases, just over a third, the interval was from six to ten days.]

(10) Another interesting difference between the two diseases was that while virulent small-pox was specially toxic towards newborn babies, the mild disease tended to be exceptionally mild in very young unvaccinated infants. Four infants, aged under 5 weeks at the time of the appearance of the eruption, had no initial illness recognized by the mothers, who stated that they had not missed a feed at the breast. In some of these cases the eruption was profuse.

The above points of difference referred to the average cases which constituted the bulk of an outbreak. They provided sufficient evidence to justify the belief that the word "small-pox" as at present used included two diseases. The crucial question was whether these diseases bred true to type—that is to say, whether the mild disease remained mild in all circumstances, and could not under any known or unknown conditions suddenly assume virulence. So far as the experience in Derbyshire went, this mild disease was remaining strictly true to type. It had been stated on high authority in South Africa, in America, and in this country that the mild disease had been known to assume virulence and acquire all the malignant characters of classical small-pox. The evidence on which this statement was made did not appear to the speaker to bear critical examination. However, that was a highly controversial matter, and would require a discussion to itself.

Dr. Garrow finished by quoting from page 1 of Ricketts and Byles's monograph on *The Diagnosis of Small-pox*. Referring to the differentiation of chicken-pox and small-pox, this authority stated that:

"Only a little before Jenner's time did chicken-pox come to be distinguished clearly from the graver disease. Indeed, it was not until well into the nineteenth century that the identity of the two disorders ceased finally to be a matter of serious controversy. Even at the latter end of the century Hebra appeared like a modern Nestor, maintaining still the ancient heresy."

If it took hundreds of years to clear up the difference between chicken-pox and small-pox, how long would it take to establish the difference between two diseases which admittedly resemble one another more closely?

Dr. E. H. SNELL (Coventry) thought that when the question arose as to the diagnosis of small-pox, the main difficulty had been surmounted. The great difficulty—in the present epidemic of very mild cases—was met with by the man in practice. He was confronted by cases with just a few pimples, perhaps only three, so negligible in fact that even the patient ignored them or failed to draw his doctor's attention to them. The present epidemic had been going on for about three years. Its very mildness accounted for it being so widespread. He himself had had twenty-four cases in hospital during the last few months; but in attempting to follow up the source of these cases he had found whole families who had recently had the illness in an unrecognized form; in fact, probably more had been unrecognized than had been recognized. The administrative difficulty in dealing with such an outlook as the present was quite novel so far as small-pox was concerned.

Colonel PENNY said that as a result of his experience in Burma he thought that small-pox, even of the Asiatic type, was by no means so easy to diagnose as some people imagined. He had on occasion found experts entirely unable to agree on particular cases. He quite agreed that if cases of small-pox from the East could be put into glass cases and shown round the country there would be no antivaccinationists.

Dr. MERCER stated that in New Zealand vaccination had died a natural death from lethargy and inanition, and that the vaccination laws had been allowed to lapse. The authorities had, however, acquired the power to take vigorous measures if an outbreak occurred.

Dr. WATT (Derby) dealt with the clinical features of the mild type of small-pox now prevalent in the North Midlands. There had been nearly 2,000 cases of notified small-pox in Derbyshire since 1921 without a death due to this cause—probably a record in this country. The incubation period was on an average about fourteen days as compared with twelve days in the ordinary form. The period of invasion covered about five days. In a well marked case there were malaise, fever, headaches, backache, pains in the bones and muscles, faintness or shivering. The temperature reached 100° or 101° F. The symptoms resembled

influenza and terminated abruptly. Patients got out of bed and resumed their usual vocations. But a large number had no symptoms other than slight malaise, and certainly no prostration. About the fifth day the rash appeared on the face about the forehead, nose, malar eminence or mouth. It travelled downwards, and invaded the legs some twenty-four hours afterwards. Its distribution was fully described in Ricketts and Byles's book on small-pox, which should be studied. The eruption was often very sparse with only a few spots, but occasionally it was profuse. About one in three showed a secondary rise in temperature to 100° F. Little help was to be got from the old diagnostic points such as umbilication, shottiness, cropping, uniloculation. Complications were negligible. The spots were pigmented for some weeks, but the skin was nearly always left smooth. The African or alastrim type was of a very low infectivity. Unvaccinated persons in close personal contact with cases had not contracted the disease. Infection had been broadcast in an isolated village, and only about one in eight of the population attacked. The laity often called it influenza with spots. Epidemics were difficult to subdue because many never consulted a doctor for so trifling an illness. Thus it smouldered on in a district, waking up into activity as it reached a fresh community. Personal contact and the occurrence of missed cases were responsible for its spread. The striking distance appeared to be short. The alastrim form bred true to type, and after four years' prevalence in this country there was no sign of any increase in its virulence.

Dr. Wanklyn, in reply, said that Dr. Millard's main point appeared to be that the spread of unrecognized cases was largely added to by infant vaccination; with this he agreed, but it was true now to a much less degree than formerly. He denied, however, that the abolition of infant vaccination would help matters, because the modification of the disease by vaccination did not really make the diagnosis more difficult. Moreover, a number of small children who were unvaccinated got the disease in a greatly modified form. He agreed that experience in this country up to the present suggested that the mild cases did breed true; in Detroit, U.S.A., however, after a long series of mild cases they had recently had a run of severe cases. Outbreaks of the mild variety had been known for many years and in all parts of the world, and he thought there was little doubt that mild small-pox had been going on for well over two hundred years. His great desire was that before the old method of dealing with small-pox was scrapped a new one should be completely prepared.

SECTION OF DISEASES OF CHILDREN.

Leonard Findlay, M.D., F.R.F.P.S., President.

DISCUSSION ON THE PREVENTION OF MENTAL DEFICIENCY.

OPENING PAPER

BY

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Since the law of England has two different criteria of mental deficiency, it is desirable that I should specify the particular class to which I apprehend this discussion is intended to relate, and with which it is therefore my intention to deal. In the Education Act of 1899 the criterion is an educational one, and the term "mental defective" is applied to a group of children evincing a certain degree of scholastic disability. In the Mental Deficiency Act of 1913, on the other hand, although the educational test is still made use of in regard to children, it is quite clear that the essential criterion is not one of educational, but of social disability. It is perfectly true that to a certain extent the two classes defined by these respective Acts are identical—that is to say, most children who are certifiable under the Education Act and who are sent to special schools do subsequently prove to be socially incapable and certifiable under the Mental Deficiency Act. This, however, is by no means always the case; there is no doubt that children may be educationally defective without being socially defective, and since, in my opinion, the former have a different causation from the latter, I wish to state that it is with the latter only that I shall deal—that is, with mental deficiency as defined by the Mental Deficiency Act of 1913. I may add that this is what is usually understood when we speak of mental deficiency.

While we are all aware that many diseases may be successfully treated and cured in the absence of precise knowledge as to their causation, it is clear that it is otherwise with regard to their prevention. To achieve this end such knowledge is essential; hence, in dealing with the prevention of mental defect, our discussion must largely be based upon and centre round what we know of the causation of this condition. This is so obvious that no apology is needed for the relatively great amount of space I shall devote to this aspect of the question. It may not be inopportune to remark that since mental defect cannot be cured, the subject of its prevention is one of great and urgent importance.

With regard to their causation, I think we shall all agree that cases of mental defect may broadly be divided into two groups. First, there is that group in which the defect is primarily and essentially due to an innate incapacity for normal development. Secondly, there is that group in which the defect is the result of development having been arrested by some external influence. These were formerly designated "congenital" and "acquired" respectively, but the terms "primary" and "secondary" which I applied to them many years ago are, I think, preferable, and are now generally used. As we shall see presently, primary cases are a result of inheritance, secondary cases are a consequence of the direct action upon the individual of some factor of the environment.

For purposes of discussion, therefore, it will be convenient to deal with the subject under these two headings, but in so doing we must not fall into the mistake of thinking that heredity and environment are opposing or even independent factors. This is not the case. All growth and development are the resultant of both these factors, and, in actual practice, we find many cases of mental defect in which we can clearly trace the operation of both inheritance and environment. It is clear, however, that in a very large proportion of cases one or other of these influences preponderates to such a degree as to leave little doubt as to the class in which they should be placed, and since the terms "heredity" and "environment" embrace all possible causal agencies such a division is justified for our present purpose. With regard to the relative incidence of primary and secondary cases, we shall probably all agree that the former are much more numerous, although doubtless there will be differences of opinion as to the precise ratio of the one to the other. It seems to me likely that these differences are largely dependent upon the particular field in which we work. For instance, the ratio between primary and secondary differs according to age, it also differs in institution cases as compared with cases at large. Taking all mental defectives above the first life-decade, my experience is that they occur in the proportion of approximately four primary to one secondary.

Primary Amentia.

The essential cause of primary amentia is a diminished developmental potentiality of the cerebral neuroblasts. This results from a variation of the germ plasm; it is therefore inherited and transmissible. I am of the opinion that these statements are justified by the results of microscopical examination, clinical observation, and genealogical investigation, and I do not suppose they will be controverted. This being the case it would at first sight appear to follow that to prevent primary mental deficiency all we have to do is to prevent the propagation of those who are mentally deficient. This is a view which is very prevalent, and among those who hold it the question of prevention mainly resolves itself into a discussion of the respective merits of two methods—namely, sterilization and segregation.

Unfortunately, however, the matter is not so simple, and in order to make this clear it is necessary to inquire somewhat more fully into the nature of the germinal change which is the basis of this diminished developmental potentiality as well as into the mode of its inheritance. At this point we meet with a divergence of opinion, and there are two chief views we have to consider.

According to one of these views primary amentia is a definite unit character which has arisen in various stocks as a defect mutation, and which is inherited as a Mendelian recessive. Assuming, for the moment, that this view is correct, it by no means follows that the condition would be eradicated, or even appreciably diminished, by measures directed towards the prevention of propagation. On this point I do not think I can do better than quote the conclusions of Professor Punnett of Cambridge, a well known worker on Mendelism.

Punnett states that, assuming an initial proportion of one defective per 100 population, the segregation or sterilization of defectives would have to be continued for twenty-two generations to reduce this proportion to 1 per 1,000; to reduce this 1 per 1,000 to 1 per 10,000 a further sixty-eight generations would be needed; while to carry this reduction to a proportion of 1 per 100,000 another 216 generations would be required. I am quite aware that these figures have been criticized by some eugenists, but I believe they are accepted by most, if not all, authorities on genetics.

However, in spite of the fact that certain enthusiasts state that amentia is now definitely established to be a unit defect, or combination of defects, transmitted in accordance with Mendel's laws, I have myself the gravest doubt regarding this, and I certainly think the proposition is far from being established. As a matter of fact, the relatively small number of his offspring renders man a rather unsatisfactory subject for Mendelian observations at all, and when, in addition to this, we are confronted with the extreme difficulty of obtaining accurate information as to the exact mental condition of the collateral and direct antecedents of a particular individual for any considerable distance back, it is evident that one must accept such conclusions as to the nature and mode of transmission of mental defect with considerable reserve. The matter is further complicated by the fact that the mental condition of an individual is a product of his environment as well as of his inheritance. For instance, if we assume two persons possessing exactly similar developmental potentiality, it is clear that the realization of this potentiality must be influenced by the nature of their upbringing. A person with a slight degree of impairment may pass muster and be regarded as normal, provided his development is not further handicapped by any external cause, and the circumstances of his life are not in any way exacting. Another, not possessing these advantages, may stand revealed as abnormal. As a matter of fact there is no such thing as the inheritance, or transmission, of mental defect at all. What is inherited, and what may be transmitted, is a varying degree of diminished potentiality for neuronic development, and this brings me to the second view regarding the nature and causation of mental deficiency.

According to this view the germ change consists in what we may perhaps best regard as a form of devitalization. We really know very little about the minute structure of the germ cell, and the manner in which the different parts of the organism to which it subsequently gives rise are represented in it remains a mystery concerning which we can only theorize. It is certain, however, that each organ and tissue is represented in some way, and it is now generally assumed that this representation consists of a number of "directive forces" or "determinants" which govern and direct the growth and development of the cells composing each variable part of the body. It is assumed that under certain conditions there may be an impairment of the developmental potentiality, or a "devitalization" of these determinants, with a consequent tendency to imperfection of the corresponding organ. This condition of the offspring constitutes a diathesis, and when it involves the central nervous system we term it the neuropathic diathesis. According to the view we are now considering it is this diathesis, or innate tendency to imperfection of neuronic development, which is the basis of mental deficiency. It is very important to note, however, that the degree of this germ impairment may vary in different generations—it is not a fixed Mendelian unit. It is also necessary to bear in mind that the environment (using this term for all those external factors which may operate upon the offspring from the time of fertilization up to the period at which development is completed) must necessarily exert an influence upon the realization of this innate potentiality. Lastly, there is reason to think that the mode of transmission does not conform to Mendel's laws, but rather that there is a blending of the qualities of both parents such as occurs in the transmission of skin colour. These considerations afford an explanation of the varying manifestations of the neuropathic diathesis which we witness in different members of the same family; they also account for the occurrence of some otherwise very puzzling instances of mental defect.

Thus, according to this view, the manner in which mental defect arises is as follows: At its origin the germ impairment may be but slight and it may then not manifest itself in any gross structural defect, but merely in a defective function, possibly of the higher cortical levels only. An individual so affected will be prone to hysteria, epilepsy, mental instability, impaired emotional control, or some mild form of psychosis—in short, to what we term a functional disorder of the nervous system. If it should happen that the circumstances of such an individual's life are entirely devoid of any stress or strain, then the tendency may remain latent and he may pass through life apparently normal. On the other hand, should there be experienced any embarrassing factors of the environment during the period of rapid growth, such, for instance, as serious ill health of the mother during gestation, a difficult and prolonged labour, or a serious illness of the child during the early months of life, then this additional handicap, acting upon the already impaired potentiality, may prevent the normal multiplication and growth of the cortical neuroblasts and give rise to some degree of mental defect.

It is possible that such a mild degree of germ impairment as this might be "bred out" by suitable mating. It often happens, however, that a person so tainted mates with one similarly affected, and then the tendency is towards an accentuation of the neuropathic condition. In this case the next generation tend to be characterized by defective neuronic durability rather than functional instability. This shows itself in the chronic forms of insanity, dementia praecox, and pre-senile dementia. Here again, however, some adverse environmental factor during intrauterine or early extrauterine life may result in a member of the generation becoming mentally defective. Should an individual of this generation mate with one of neuropathic stock there will be a still further impairment of neuronic potentiality, and this may reach such a degree that development cannot attain a stage needed for transacting the affairs of ordinary life. In other words, the tendency will be for the offspring to suffer from mental defect and other forms of mental subnormality.

With regard to these two views of the origin of mental defect, which we may term respectively the Mendelian and the theory of germ impairment, I must confess that my opinion is strongly in favour of the latter. Since I first advocated it nearly twenty-five years ago I have had opportunities of examining many hundreds of cases of every variety and grade of amentia, and of inquiring into their family histories, and the result has been to confirm me in the view I then took. It is perfectly true that from time to time one does meet cases of amentia for which no adequate cause can be discovered, but in the great majority of primary aments careful inquiry will reveal the presence of neuropathic ancestry, and I therefore think that it is a germ impairment, of which such ancestry is the expression, which is the essential basis of this form of mental defect. If we also bear in mind the additional points to which I have alluded—namely, that inheritance is probably of the blended and not the Mendelian type, and that the environment exerts an influence upon the realization of the germ potentiality—then it seems to me that we

have a logical concept of the causation of mental defect as well as an explanation which is most in accordance with our clinical knowledge.

Coming now to the question of prevention, it is apparent from what has been said that any attempt to eliminate mental defect by preventing the propagation of those who are themselves defective can only be attended with very limited results. Although it is quite true that a certain number of defective fathers or mothers do produce children, and that such children are usually subnormal and often defective—or, to put it another way, although a certain number of defective children are the offspring of defective parents—the actual proportion of cases in which this happens is relatively small.

I have no doubt whatever upon this point, and it is one which must not be lost sight of in considering the sterilization or segregation of defectives as a means of prevention. Holding, as I do, the view that mental defect is not the result of the inheritance of a germ plasm devoid of one or more definite unit characters, but of a plasm which has undergone devitalization, and holding further that the inheritance of this does not follow Mendel's laws, I am not in the fortunate position of being able to furnish an exact mathematical forecast, as are the Mendelians; nevertheless I agree with them in their general statement that the effect of the sterilization or segregation of those who are actually defective would only be attended with very limited results. Whichever view of the nature of the germ change we adopt it is evident that to produce any appreciable result we should have to prevent the propagation of all those in whom the taint is present—in other words, of all "carriers," or those suffering from the neuropathic diathesis. It is obvious that any such compulsory prevention is not only quite impracticable, but impossible.

The question arises, however, whether any considerable result in this direction might be brought about voluntarily by the education of public opinion. This brings me to a subject into which I am extremely loath to enter, because I see a distinct possibility that it may act as the proverbial red herring and draw us away from our real objective. Nevertheless, it is so pertinent to our discussion that it cannot be ignored. I refer to the subject of birth control. Now admitting that the arguments of Malthus are sound, and that the question of food supply will sooner or later compel mankind to limit the number of his progeny, I think it is clear that its adoption by one nation only, while the remainder of the peoples of the earth continue to propagate without restriction, would inevitably be attended with disaster to that nation. Birth control may not inaptly be compared with disarmament. It is sound in principle, and would be beneficial if universally adopted; but, human nature being what it is, it would be a perilous procedure for a single nation to adopt. It seems to me that the same argument applies to the different classes *within* a nation. If birth control is not to be attended with any change in the ratio of the different sections it must be adopted by all sections of the community alike. If it is not so adopted, but is partial, it must inevitably lead to a preponderance of that section not making use of it. As we are well aware, birth control is no new thing. It has been practised for many years, and I think you will probably agree when I say that it has been, and is, chiefly practised by that section of the community whose increase should be encouraged rather than discouraged. In other words, it has not generally been adopted on the grounds of morbid inheritance or personal health, but for prudential reasons. It has been used by the efficient, the thrifty, prudent, and ambitious, who wished to maintain a certain standard of comfort and at the same time ensure for their children the best start they could in life. It has made no appeal to the biologically unfit, the thriftless, and the dependent and parasitic sections of the community. The inevitable result has happened that the decline in the birth rate which has taken place during the past two generations has not been uniform throughout the whole community, but has been selective. It has fallen principally upon the professional and best elements of the artisan classes, whilst the parasitic class, and especially those of neuropathic constitution, have continued to propagate with little diminution. It seems to me that any general advocacy of birth control must operate still further in the same direction, and must inevitably tend to increase the ratio of those to whom it makes no appeal, or who are lacking in the prudence and control to apply it. Since I consider that neuropaths form a large proportion of this class, I am of the opinion that it will tend to an increase, and not a decrease, of mental defect. It is for this reason that it has seemed necessary to refer to it. What is wanted at the present time to restore the balance and conduce to human progress is not the indiscriminate advocacy of birth control, but the encouragement of the multiplication of the biologically sound and fit and the discouragement of the unsound and unfit. Compulsion is out of the question, but it ought not to be beyond the power of the State to devise means which would contribute towards this end, and I cannot but feel that our profession might do more than it does to educate public opinion regarding the claims of posterity.

At the same time, as all will admit, partial prevention is better than no prevention at all. Although the number of aments who are the offspring of certifiable mental defectives is, in proportion to the whole, small, yet there is no doubt that such certifiable defectives do produce children; there is equally no doubt that the majority of these are subnormal or defective in mind, and their absolute number is by no means inconsiderable. In short, whilst the prevention of propagation by aments would by no means eradicate mental deficiency, or come anywhere near a measurable distance of that end, yet it would undoubtedly do something towards limiting the number of this class. This brings us to the discussion of the respective merits of sterilization and segregation.

I cannot but feel that there is a tendency in some quarters to attach an importance to this subject greatly in excess of that which it really possesses. Sterilization, in particular, has been advocated in terms which suggest that it has only to be adopted to bring about the complete elimination of mental defect. It is necessary to emphasize the fact that this view is quite fallacious. The most that the sterilization of defectives can do is to prevent that relatively small proportion of defectives who are the offspring of actually defective parents. As to the relative advantages of the two methods, I am of the opinion that, as a practical policy, segregation is decidedly preferable to sterilization. My reasons for this are as follows. So many mental defectives are incapable of remunerative employment, or are possessed of antisocial propensities, that they can only be adequately cared for in an institution. These disabilities would in no wise be lessened if they were sterilized, and there is the distinct danger that a policy of sterilization would lead to a false sense of security and result in many who should be under care being allowed at large. In addition to the difficulty of providing these with suitable employment, and the social menace resulting from their wayward and often criminal propensities, it is highly probable that the presence at large of such sterilized defectives would increase sexual assaults and encourage promiscuous sexual intercourse, with a consequent increase in the incidence of venereal disease. On the other hand, segregation is attended with none of these disadvantages. It does, in fact, not only all that sterilization can do, but more; it is therefore preferable as a general policy. At the same time, sterilization has advantages in particular cases, and where an individual can be employed outside to advantage, where conduct is satisfactory, and where the only danger attaching to his presence is that of reproduction, it is an appropriate procedure. It is possible that there is a legal aspect to this question. The amount of time at my disposal does not allow me to enter into this, but perhaps the matter is one which may be considered in our discussion.

Up to this point we have been concerned with the question of preventing the propagation of those who are either themselves defective or are of neuropathic constitution, and who on this account may be regarded as possible "carriers" of mental deficiency. It now becomes necessary to consider the matter from a wider standpoint, and to ask whether anything can be done to prevent that variation of the germ plasm which is the *fons et origo* of this condition. Whether we regard this as a "defect

mutation" according to the Mendelians, or as a form of germ "devitalization," I think there can be little doubt that it is still being produced. It follows that, even if we could ensure the sterility of not only every existing defective, but of every possible carrier, it is in the highest degree probable that a fresh crop would be produced in a very short time. The question therefore arises, Can any steps be taken to prevent this happening?

It may at once be said that while every biologist admits the immense importance of this question of the origin of germ variations, which, in fact, lies at the very root of evolution, nevertheless our actual knowledge of this subject is extremely meagre. In my opinion clinical evidence and genealogical inquiries are in favour of the view that the alteration in the germ neuronic determinant does not arise as a definite mutation in the biological sense, but rather as a pathological impairment of developmental potentiality, and various explanations of the cause of this may be suggested. One is that the germ plasm of certain stocks in the community is affected with a form of senescence. In consequence of this there is a defective durability of the offspring, the change, however, being most marked in the central nervous system. It is suggested that this senescence may be due to in-breeding, and there is evidence that close in-breeding in certain animals is attended with germ impairment and deterioration of offspring. It is clear, however, that in-breeding to this extent is quite unknown in human beings, and inquiries which have been made into the best examples of it in man do not support the view that it is attended with any markedly injurious consequences.

Another possible explanation is that the blending of germ and sperm cells possessing markedly different racial or other characteristics may be attended with new and untoward results to the offspring; in other words, that the effect may resemble that of chemical activity rather than mere mechanical mixture. This does appear to happen at times in mating between individuals of two widely differing races, but it is inadequate to explain mental defect in a tolerably homogeneous nation. A third explanation is that the germ plasm of one or both parents has been impaired owing to the presence of some adverse factor of the environment, such, for instance, as a circulating toxin of chemical or microbic origin. Regarding this there is, in my opinion, clear evidence that the vitality of the germ cell may be affected by such agents. It has been shown, in cases where the father alone suffered from lead or mercurial poisoning, that a marked impairment of the vitality and growth potentiality of the offspring resulted. The same has been observed in the case of tuberculosis, and probably many of us have noticed that the children begotten by a father in an advanced stage of consumption compare unfavourably, especially in their nervous systems, with those born of healthy parents. I think that a similar result may occur in the case of markedly alcoholic fathers. I may remark that some recent biological experiments by Tornier upon goldfish demonstrate the injurious effects which may be produced upon the germ plasm by the environment.

While I fully admit the need for further investigation into this very important subject, yet on the whole this last explanation seems to me to accord best with the facts known to us. I accordingly suggest that the devitalization of the germ plasm, which reveals itself in various abnormalities of the nervous system, and which reaches its culminating manifestation in amentia, is the result of adverse conditions of the environment, probably of the nature of circulating toxins, or possibly of some disturbance of endocrine balance. It may be added that since the nervous system of man is at once the least organically fixed, the most unstable, and the most complex, it is not difficult to understand that any impairment of the vitality of the germ cell should be chiefly incident upon the neuronic determinant. It is worth noting, however, that in many aments, and in not a few other neuropathic individuals also, there are indications of developmental imperfections in other tissues of the body, as witnessed by the "stigmata of degeneracy" so frequently present.

If this view of the origin of pathological germ variations, which I have advocated for many years, is the correct one, then it is clear that the outlook as to prevention is very much more hopeful. So long as such variations were regarded as purely fortuitous, or the result of factors quite beyond our power to influence, then preventive medicine could only stand still with folded hands whilst degeneracy exacted its toll, and, in so doing, seriously crippled the evolution of the race. But if their origin lies in diseased conditions of the individual and adverse factors of the environment, then it is only a matter of further time and knowledge for medicine to play a successful part in preventing them, and thus cutting off the supply of defect, disease, and disorder of mind at its source. At the present time preventive medicine is almost entirely concerned with the individual. I will venture to hazard the statement that the time is not far distant when it will include the race within its scope, and the basis of this must be the ascertainment and elimination of those factors of the environment which injure the germ cell.

Secondary Amentia.

I now pass to a consideration of secondary amentia. Cases belonging to this group stand on an entirely different footing from those we have just dealt with, for the reason that there is no germ defect and no innate impairment of the developmental potentiality of the neuroblasts. Development has, in fact, been proceeding normally until it has been arrested by some adverse factor operating directly upon the embryo or young child. From one aspect secondary amentia is of far less importance than primary. For one thing, such cases are less numerous; for another, the condition, not being germinal, is in all probability not transmissible. From another point of view, however, they are of more importance. Such cases may occur in any family, and one of the saddest things I know is to see, perhaps, the only child of highly intellectual and efficient parents, a child ably endowed by nature, converted into a hopeless idiot by the operation of some factor which medicine ought to be, but unfortunately at the present time is not, able to prevent.

As in the primary group, prevention depends upon a knowledge of the cause. These causes, however, are very varied, so that it is necessary to consider separately the chief clinical varieties of this form of defect.

Amentia due to Vascular Lesions of the Brain.—The lesion in these cases is usually a haemorrhage which occurs during parturition. It is generally meningeal and results from tears of the membranes consequent on excessive constriction of the skull by forceps or the bony pelvis. The child, on being born, presents the signs of asphyxia, with feeble pulse and respiration, tense anterior fontanelle, contracted pupils, and absent sucking reflex. Later on, in addition to the amentia, epileptic convulsions and some degree of paralysis may be present. With regard to the prevention of these cases there are two points which I would suggest for discussion. First, I would ask our obstetrical colleagues whether improved technique in the management of difficult labours might not result in a decrease of cases of this type. Most of them are breech cases, and I sometimes wonder whether there may not be faults in our present methods of delivering the after-coming head. Secondly, the child being born and its condition such as to indicate the presence of haemorrhage, I would ask our surgical colleagues whether operation might not avail to relieve the pressure which may otherwise result in destruction of cortical cells and mental defect. My experience of cases in the early stage is very slight, because the mental specialist is not usually called in until some years later. By that time the damage has been done and operation is useless, but I cannot help thinking that in some instances, at any rate, it might have been attended with satisfactory results had it been performed within a few hours of birth. Apropos of brain surgery, I may remark that, with the exception of these cases of haemorrhage, there are, in my experience, practically no instances of mental defect which can be benefited by operation, although this point is often raised by parents. At one time it was quite common to remove strips of bone from the skull of the microcephalic, in

the hope that the brain would thereby be permitted to grow. But I have never seen, nor heard of, any good resulting from such procedure. It was based upon inaccurate pathological knowledge.

Amentia due to Toxic and Inflammatory Brain Lesions.—Cases of this kind are probably more numerous than the preceding, the cause being an inflammatory process either primarily incident upon the brain or its membranes or secondary to some infection elsewhere. As examples I may mention cerebro-spinal meningitis, polio-encephalitis, and encephalitis lethargica, all occurring in the early months or years of life. With regard to cerebro-spinal fever, there is no doubt that the early injection of serum has a beneficial effect upon the course of the disease, and I certainly believe that the more prompt recognition of this condition in young children, and its treatment by serum, would reduce the number of cases of amentia due to this cause. With regard to the other conditions we have at present no specific treatment, and we can only wait until the pathologist supplies us with one.

I would also draw attention to the need for early special education and training in these cases, for I think that by these means the resulting defect may be considerably lessened.

Mongolism.—I think there is no doubt that this variety of amentia has increased very considerably during recent years. Although it is here included under the secondary group, the cause is still quite unknown, and in the absence of such knowledge we are unfortunately powerless to prevent it. Some amelioration does appear to result from endocrine treatment, but the mongol, unlike the cretin, is never cured by this.

There are several other clinical varieties of secondary amentia, but the only further one to which I shall allude is that due to syphilis. So far as my experience goes, when arrest of cerebral development has once been produced, no treatment is of any avail to remedy the deficiency. It seems possible, however, that this occurrence might have been prevented had the infected mother received an adequate course of treatment before or during pregnancy.

In conclusion, I would like to emphasize the fact that while mental deficiency is a medical, it is also a social problem of the utmost importance. For not only are defectives non-efficient, and in many instances antisocial, members of the State, but, as we have seen, the condition is one which is closely related to many other forms of subnormality, instability, and defective durability of mind. When we regard the important part which mind is called upon to play in a civilized community, and when we consider that it is in this direction that the further evolution of man must take place, the significance of this is obvious and prevention becomes a matter of the most urgent necessity. The application of such knowledge as we have at present would, to a certain extent, help towards this end; but it is clear that on many points our knowledge is still very defective, and it cannot be doubted that it would be greatly to the benefit of the nation and the race if provision were made for scientific research into this question.

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DR. TREDGOLD'S paper does not lend great encouragement to the hope that, as the result of this discussion, we are likely to discover any practical means of reducing the number of mentally deficient children in this country. If there are four times as many primary as there are secondary defectives after the first decade of life, and if it would take twenty-two generations for either sterilization or segregation of such individuals to effect a reduction from 1 in 100 to 1 in 1,000, we are not likely to see much improvement in our time by putting either of these measures into the most stringent enforcement.

I am glad, however, to learn from one who has had so much practical experience in dealing with this class of case that Dr. Tredgold does not trust in the infallibility of the Mendelian laws of inheritance, at least so far as the inheritance of mental defect is concerned. Dr. J. G. Adami, in his Croonian Lectures for 1917, in my opinion gave the *coup de grâce* to the detestable fatalism to which belief in Weismann's "ids," "determinants," and "biophores," and Mendel's laws of inheritance inevitably lead; and although Dr. Tredgold still appears to have some lingering regard for the hypothetical "determinant" or "directive force," he still adopts the more optimistic view that the germ plasm is not immutable, and that a large proportion of the cases of hereditary mental defect are due to damage inflicted on it by its somatic or external environment, by some form of "devitalization," which is, I suppose, the same thing as Professor Forel's "blastophthoria" (*blastos*, germ, + *phthoria*, corruption).

If the germ plasm can be injured by such noxious agents as alcohol, lead, or mercury, or by the toxins of tuberculosis or syphilis with hereditary influences extending through several generations, as Stockard, Bertholet, Forel, and Tornier have shown to hold good in the case of the lower animals, we are surely justified in hoping that, with the cessation of these causes of injury, mild degrees of germ impairment may be "bred out" by suitable eugenic methods. During the last few years the feeding experiment of McCollum, Osborne, Mendel, and others in America, conducted through several successive generations on colonies of animals, have indicated that the cumulative influences of wrong feeding, especially with respect to the accessory factors, can produce far-reaching effects on growth and powers of reproduction in successive generations; it appears almost certain that there must be elements in the food which have a selective influence on nerve elements or their representatives in the germ plasm. Indeed, it seems to me that the influence of the element iodine in connexion with that particular class of mental defect known as cretinism, and the influence of maize and various biologically defective proteins in the production of pellagra, and the influence of the water-soluble B factor in the production of the beriberi type of neuritic degeneration, are instances in point. A study of such influences acting, perhaps, quite mildly through several successive generations may actually lead to the discovery of what are at present the unknown causes of the devitalization of the germ plasm which leads to mental defect and degenerate offspring.

The etiology of that large class of mental degeneration included in the category of mongols must probably be referred to damage inflicted on the germ plasm rather than to causes connected with uterine exhaustion or to endocrine defects in the mother as more generally believed; at least to this conclusion the observations of T. Habertsma of Haarlem clearly lead.

This Dutch physician has collected from the literature all the known instances of mongolism which have occurred among twins, and he finds that there are only two known instances of mongol twins, and these were identical twins, whereas there were sixteen cases of non-identical twins, in which one baby was a mongol and the other was normal. It is impossible to imagine that if the etiology of mongolism is to be ascribed to uterine exhaustion or endocrine defect that one twin could be a mongol and the other a normal infant. The germinal theory of mongolism would, however, fall to the ground if there were on record a single case of identical twins, with one chorion, one placenta, and of one sex, in which one twin was a mongol and the other normal. On the other hand, the germinal theory of mongolism requires some explanation, inasmuch as mongolism does not run in families, and only in the rarest instances have two mongols been born to one mother. If the germinal theory is correct, we must suppose that the damage inflicted on the germ plasm is local and not general, implicating a single ovum or a single spermatozoön, or at least a prescribed area of the ovum or testicle.

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I SHALL not attempt to follow the opener of this discussion in his biological speculations, as, frankly, I do not fully understand them, but I shall deal with the subject from a purely clinical point of view. We are all agreed that mental deficiency is not a disease but a symptom, and that some classification of its varieties is a necessary preliminary to a discussion of its prevention. Dr. Tredgold has proposed

a division into primary and secondary forms, but this does not carry us very far, and it is difficult to see why mongolism is regarded as secondary. The classification I have used in my own cases is the ordinary one employed by clinicians, and is based partly on the physical appearance of the child and partly on the presence of other signs and symptoms, such as paralysis or fits. I have selected only cases seen in private practice, as the family history is more trustworthy in such cases than in those seen in hospitals, and of 150 consecutive cases I have placed 35 per cent. as mongols; 2 per cent. as microcephalics; paralytic, epileptic cases, and cretins each make up 6 per cent.; whilst the remaining 45 per cent. presented no distinguishing features, except the presence of the mental defect, and have therefore been classed as cases of simple primary amentia. It will be noted that the last-named cases and the mongols together make up 80 per cent. of the total, and it is evident that if we wish to make any serious inroad on the mass of mental deficiency in the country we must concentrate our attention on these two classes.

(1) *Simple Primary Amentia.*—Dr. Tredgold regards this as due to a "diminished developmental potentiality of the cerebral neuroblasts," which arises as a variation and is inherited and transmissible; but he also says that the devitalization of the germ plasm, which results in the developmental impairment, may be brought about by adverse influences in the environment, using that term in its widest sense. Let us examine these two propositions. As proof of the inheritance of mental deficiency, Dr. Tredgold says that he finds a neuropathic strain in the families from which such children come. But we all have a neuropathic inheritance—all of us, at any rate, who are worth anything—and for my own part I have not been able to find that the family history in my cases of mental deficiency has been any worse in this respect than that of the average normal child. The fact that it is quite exceptional to find more than one mentally defective child in a family is also evidence against heredity having much to do with it.

I believe that the evidence for environmental influences acting on the germ plasm is equally unsatisfactory. As examples of such possible influences, Dr. Tredgold is obliged to drag in our old friends "toxins" and "disturbance of the endocrine balance," whilst Dr. Pritchard suggests those equally overworked conceptions "vitamin defect" in the mother's diet or the consumption of "proteins of low biological value." These are the refuges of the etiologically destitute. As a matter of fact, I have not in my own cases been able to find anything wrong with the health of the mother during her pregnancy; her diet has been like that of anyone else, and in at least one-third of them she has afterwards produced one or more perfectly normal children.

I have myself no theory of the genesis of primary amentia to offer, but there is one clinical fact which must mean something, and it is this, that in two-thirds of the cases the child was the first-born in the family, and often it was premature as well. The Scottish poet said with more chivalry than scientific probability that Nature first "tried her prentice hand on man and then she made the lasses," and it would almost seem as if in some families she tried her prentice hand on an ament before making a normal child. This, however, does not help us at all in the prevention of primary amentia—unless, indeed, we are prepared to imitate Herod and kill off all the first-born.

(2) *Mongolism.*—There is one striking clinical fact about this form of mental deficiency which has not been mentioned in the discussion, and it is that in 75 per cent. of the cases the mother has been 35 years of age or upwards at the time of the child's birth; this was so, at least, in my series, and others have published very similar statistics. What the bearing of this fact is on the pathogeny of the condition it is difficult to say, but it has been suggested that it indicates some connexion between exhaustion of the reproductive function and the production of a mongol, there being perhaps an arrest of cerebral development at an early stage. Here, again, we are not helped in any attempt at prevention, for although one quarter of the mass of mental deficiency would disappear if no woman over 35 had a child, yet no one would suggest that such an enactment is practical politics.

Compared with the two that we have considered, the other varieties of mental deficiency comprise so few cases that even if we knew any way of preventing them the effect on the problem as a whole would be almost negligible. In any case the only class that offers any scope for prevention is that which includes the cases resulting from injury to the head at birth. At a liberal estimate these do not exceed 10 per cent. of all defectives, but undoubtedly greater antenatal care and better obstetrics might lessen their number. Syphilis as a factor in the production of mental deficiency is also negligible. Dr. John Thomson found it present in only 29 out of 952 cases, and it is doubtful if even then it was more than a concomitant.

To sum up, then, I regard mental deficiency as arising in most cases as an unfavourable variation which is not more inherited than, say, hare-lip. I agree with Dr. Tredgold that sterilization of the mentally defective is no solution of the problem of prevention, although I am entirely in favour of segregation. I believe, however, that even if all defectives are segregated each generation of average stock will still produce its quota of them, just as it does of individuals of exceptional ability, and that there is no more likelihood of our being able to prevent this than of our being able to prevent, supposing we wished to, the occasional birth of a man of genius. I am aware that this may seem to some a pessimistic conclusion, but I confess I have little sympathy with that sort of optimism which supposes that we have only got to spend enough on "research" or pass a sufficient number of Acts of Parliament in order to abolish all human ills. I hold rather with that robust realist Mrs. Sairey Gamp that we were "born into a wale—and must take the consequences of sech a sitiwation."

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As Dr. Tredgold has said, we must first think of causation: when we do so we find ourselves in a great difficulty. It is not easy to prove the cause of mental defect, because such a long period of time must elapse before we can join up all the links in the chain, and we must make sure that both the first and last links have been studied and described by competent observers. In one sense we do not know the cause; we cannot assert that that cause is always followed by mental defect in the way that a particular infectious disease always occurs after the introduction of special germs. Even when we have tabulated all the causes of amentia we can think of, we have to admit, not infrequently, that none of these can be blamed in a case under consideration. Still, certain happenings do precede mental defect sufficiently often for us to say that they must be contributory factors. Among such factors Dr. Tredgold has put impairment of the germ plasm first. I agree with him, as also in his statement that there is no proof yet of inheritance of amentia along Mendelian lines, although sometimes we find records which indicate that occasionally such inheritance does seem to conform to the laws governing a Mendelian recessive character. I refer to family records in which there has been no defect till one of the parents has died, and the other has married again and produced a family in which mental defect occurs in the proportion of one in four, a happening which can be explained by the fact that the mate who died carried no mental defect in the germ cells, while both the other parents were carriers. On the other hand, my experience has often been that it is insanity which precedes amentia more often than amentia itself. This confirms Dr. Tredgold's idea that mental defect is not a unit character. All the same I am sure that segregation will act favourably in reducing the number of defectives, though the process must be a very slow one if it is the only means we employ; we must aim at hygiene and social betterment as well. The remarks made by the opener about birth control are very appropriate; those who advocate birth control often seem to have a limited outlook, not realizing its far-reaching effects, and the fact that it is involved in many other social and national problems. When the advocates of indiscriminate birth control say that it must be practised first by the intelligent members of the community, and that later the more degenerate and even the feeble-minded will follow suit—and I have heard more

than one advocate of birth control say that—they make themselves ridiculous.

In spite of all the difficulties, however, we need not despair; as the opener has said, the environment must tell. Here I would emphasize three unfavourable factors: First, toxic infection in pregnancy. Drs. Orr and Rows have shown how dangerous some infections are, and have shown that even a mild infection of the pregnant mother may have serious consequences: hence the importance of the ante-natal clinic. A difficulty in prevention arises from the fact that the most dangerous time is probably the first six weeks of pregnancy, before the adrenal secretion of the foetus is formed. To deal with this, all young married women must be taught how important sound health is; pyorrhoea, in particular, must be eliminated. Secondly, Professor MacBride, after first drawing attention to the frequent and extraordinary abnormalities produced in gold fish by bad hygiene, and lack of oxygen in particular, has stated how injurious rapidly repeated pregnancies are on the later offspring. The careful pictorial and other complete records made by Dr. Murk Jansen of families where the children rapidly succeed one another leave no doubt as to the injurious effects. Many records I have collected myself corroborate this. Thirdly, I would confirm what Dr. Tredgold has said with regard to the advantages we may expect from the better training that is now being arranged for medical students in obstetric work. Dr. Eardley Holland's epoch-making investigation in connexion with stillbirth has an important bearing on this matter. He established the fact that the commonest cause of stillbirth is not syphilis, as has often been suggested, but injury to the head during delivery in a breech case, or from the forceps in a vertex. The injuries he found most frequently were not associated with any external sign, but consisted in tears of the falx cerebri and tentorium cerebelli, often associated with internal haemorrhages. It is only reasonable to suppose that in some cases of such injury where death does not supervene the mental impairment may yet be serious. This supposition is confirmed by reference to the records of a group of mental defectives, in which I found that as many as 20 per cent. were the first-born of the family. It is a matter of common knowledge that the first labour is often the most difficult, and that if special preventive obstetric treatment is carried out subsequently it is largely because the first time was such an ordeal. Do not think I blame the obstetric forceps themselves: used wisely they often prevent disaster. It is the unskilful use of them, or the relying on them in a difficult case where induction of labour or a Caesarean section would have been the right course. Encephalitis lethargica is undoubtedly a cause of secondary amentia, though not a common one. It must be taken seriously and every possible remedy employed, including influenza vaccines which have seemed to me and to several others to be useful in spite of the fact that the virus is not the influenza germ.

GENERAL DISCUSSION.

Dr. BERNARD MYERS (London) said that since mental deficiency was due to causes either innate in the germ plasm in the primary cases, or to environmental influences upon the embryo or foetus during gestation or the child after birth in the secondary cases, they must, where possible, stop the cause from acting if they wished to prevent the occurrence of this condition. From the primary amentia point of view they should endeavour to influence public opinion, and especially those people immediately concerned, so that aments did not marry, more particularly those more seriously afflicted and those with a neuropathic inheritance. Segregation was much more likely to help than sterilization; the splendid success of the former method at Darenth Colony was full of hope. Not only was the propagation of the species prevented, but the lives of those afflicted were made happy by suitable practical training, medical supervision, and care amid delightful surroundings, while the chances of their doing harm to the ordinary members of the community or vice versa, or, on the other hand, harming themselves, were greatly diminished. Further, they were spared competing in the battle of life with normal members of society. Men or women suffering from alcoholism, syphilis, active tuberculosis, lead poisoning, etc., should also not marry, since the effect of these upon the germ plasm was not unlikely to be injurious, and amentia might result.

During pregnancy a woman should be placed in the best possible circumstances for preserving her health. She should be properly housed, clothed, and fed, and her life made reasonably happy. She ought to be kept away from all sources of infection lest the latter affect her unborn child. Alcoholic beverages should be avoided. If a victim of syphilis, efficient treatment should be immediately given in her own interest and to prevent the child being born syphilitic. The treatment should be continued after parturition for as long as might be necessary. During parturition any unnecessary manipulations should obviously be avoided, and head presentations should be maintained in preference to breech where possible. From birth onwards every precaution should be taken to protect the child from polio-encephalitis, cerebro-spinal fever, encephalitis lethargica, etc., lest mental deficiency ensue. Children should be brought up sensibly so as to bring out the best qualities and weed out undesirable ones. The child must learn from a very early age to control itself and its actions. No type of child needed more care and wisdom in upbringing than the neurotic, since so many of that type were potential hystericals, and not a few suffered from convulsions or, perhaps, epilepsy. If they were efficiently brought up the result was excellent, but if not the child might become a nuisance to society and a potential father or mother of the mentally unfit. Unfortunately many of the parents (nearly all the mothers) of neurotic children were themselves neurotic, and a new and suitable environment was called for temporarily in many instances to obtain the best results.

Dr. R. L. LANGDON-DOWN (London) thought that Goddard's work on the Mendelian theory of the propagation of mental deficiency was quite unproved. He considered that segregation of mental defectives was much better than sterilization.

Dr. R. M. MARSHALL did not think the "neuropathic diathesis" was inherited on Mendelian principles, and he did not agree that it was likely to end in gross mental deficiency. There was very little hope of improving the present condition of affairs.

Dr. C. PAGET LAPAGE (Manchester) said that in his opinion there was no distinct gap in mental endowment; the feeble-minded was different from the backward child, but the difference was not entirely of the nature of a distinct heredity change. The dividing line was very narrow and transition might be very easy in some cases. It was surprising how the child could change in a few weeks or months after encephalitis lethargica. But still the influence of stock was very great, and under the best conditions in-breeding, and unions with bad stock, would sooner or later bring disaster. He had not found much evidence of devitalizing factors having an effect; cases often occurred with every possible devitalizing factor, but without harm to the mental outfit of the offspring. Again, the so-called neuropathic parent was often not a true neuropath, but a parent rendered abnormal by toxic influences, metabolic or infective. Devitalization, therefore, was a very doubtful factor. He preferred segregation to sterilization. Recent experience had shown that polio-encephalitis (which gave meningitic symptoms) was often the cause of those cases which were once included in statistics as meningitis cases. Mongols were very common, and in hospital many infant mongols were seen who never reached school age. The condition was quite evident at birth, and the cause was to be looked for at or before conception. Endocrine treatment must be given to the parent.

In his reply Dr. TREDGOLD did not agree that mental deficiency was due to pure chance. He thought there was clear evidence that toxic influences produced changes in the germ plasm, and he considered that money devoted to the remedy of mental deficiency in children was well spent. Many such children had improved so greatly that they could earn their own living under supervision.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CASE OF OTITIC CEREBRO-SPINAL MENINGITIS: RECOVERY.

THERE have been lately reports by Davis,[1] [3] Jenkins,[2] Martin,[4] Askey,[5] Layton,[6] and Jobson[7] of cases of otitic meningitis which recovered after various operative procedures. In only three cases ([3], [5], [7]), however, had organisms been cultured from the cerebro-spinal fluid. The following is worth recording, since recovery ensued without treatment after organisms had been grown from the cerebro-spinal fluid.

A boy, aged 9, underwent Schwartze's operation on the left side in December, 1922, at the Victoria Hospital for Children. He was readmitted, and on May 1st, 1923, the old incision was reopened and a radical mastoid operation performed. Extensive disease of the bone was found, with involvement of the roof of the tympanum. The diseased bone was removed, drainage established through the external auditory meatus, and the posterior wound closed.

The wound behind the ear broke down and discharged. On May 23rd there was still considerable discharge from the meatus and from the wound. On May 24th, over three weeks after the operation, the patient vomited after his midday meal, and complained of severe headache; he continued to vomit all the afternoon, and his temperature rose to 101.4° F.

On May 25th there was slight rigidity of the neck and slightly increased tone in the hamstrings; lumbar puncture yielded a slightly turbid fluid under increased pressure. This was examined by Dr. Stanley Wyard, who reported as follows: "A clear, colourless fluid with deposit of pus. Many of the cells are lymphocytes. A few diplococci are seen. In cultures pneumococci alone grew."

The temperature that evening was 99.8° F. The next day the temperature was not raised. On May 27th the patient was sitting up and playing with toys and there was no headache. On May 28th he had severe headache again after vomiting once during the night; this passed off rapidly during the morning. On May 30th he was noted as "quite well."

On June 19th, on getting him up, an ataxic gait was noticed. He had a tendency to fall to the left, and the right shoulder was rotated forwards. By June 28th, 1923, he could walk steadily.

When seen in June, 1924, he was quite well, attending school, and apparently normal in all respects.

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VAGINAL OCCLUSION: URINARY CALCULUS: CAESAREAN SECTION.

THE following case seems worthy of publication because of its general interest.

On April 29th, 1924, I was called to visit an East Indian woman who had been in labour for twelve hours. She was conveyed to the company's hospital. I found that there was absolute occlusion of the upper two-thirds of the vaginal canal due to a dense fibrous band. It was impossible to make out the cervix, and I could with great difficulty feel the apparent foetal head behind the adhesion. On the anterior vaginal wall, and in front of the adhesion, there was a hard calcareous mass, which on removal proved to be a phosphatic stone; it weighed 3.292 grams and measured in inches 1.115 by 0.907 by 0.478. On its removal, urine trickled into the vagina, proving the presence of a fistula. This fibrous obstruction, I take it, was due to the chronic irritation resulting from the fistula. The patient was well nourished and was having strong labour pains. Owing to the condition of the vagina I considered it justifiable to propose Caesarean operation; this was agreed to.

The anaesthetic (chloroform with ether) was administered by Dr. Murray, and Dr. Doyle assisted me in the operation. The abdomen was opened in the middle line. The uterus was exposed, and incised on its right anterior margin. The placenta was anterior; there was no difficulty in delivering this, and a full-term female child was delivered alive. Owing to the position of the placenta there was considerable haemorrhage, but this was controlled with hot salines and pituitrin. All clots were removed, and the lower abdominal cavity irrigated with saline. The incision in the uterus was sutured with interrupted silk and the abdomen closed in the orthodox manner. The patient did well up to the twelfth day, when she suddenly became maniacal and refused absolutely to take any nourishment; she died on the sixteenth day after the operation. The child is alive and healthy.

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Reviews.

THE MEDICAL HISTORY OF NAPOLEON.

DR. CABANÉS must be congratulated upon the publication of his book, *Au Chevet de l'Empereur*,[1] for it contains a complete and minute study of the medical history of the great Napoleon. To this subject Dr. Cabanés has brought his well known industry and skill in unravelling the maze of intricacies which surround the study of the illnesses and constitutional peculiarities of the emperor. The result is an excellent work, which may be safely consulted by those multitudes of readers who are always fascinated by anything which deals with the most representative man of modern times. From his birth to the tragic end of his stupendous career, Dr. Cabanés has traced and recorded all Napoleon's indispositions, great or small, and when commenting he has shown a praiseworthy restraint, which adds value to his work.

Those who have devoted time and attention to the medical side of Napoleon have found too often that it is almost impossible to approach the subject without becoming a partisan, for the career of Napoleon, although finished now for more than a century, still has the power to rouse all the fiercest passions that dominate mankind. Even when we study the last illness and death of Napoleon we find ourselves whirled into the vortex of the storm of contention that raged round his death-bed in St. Helena. Judgements become warped, passions are aroused, and we take our places on one side or the other of the contestants engaged in the strife. But Dr. Cabanés has been able in large measure to divest himself of this partisanship, and has maintained with success that spirit of cold, critical judgement which makes his work so valuable. In common with other workers in the field, he has a theory to account for the maladies of Napoleon, which culminated in death from cancer of the pylorus, in St. Helena, on May 5th, 1821, at 5.49 p.m. He believes that the varying phases of Napoleon's illness may be traced to the influence of an "arthritic diathesis," and he adduces evidence in favour of that supposition. He also calls attention to the unusual occurrence of both cancer and tuberculosis in the same subject, conditions which were found at the *post-mortem* examination of the emperor.

But theories are not so important as facts in connexion with Napoleon's medical history, and in this book can be found a mass of facts of the greatest use to the student of the subject. For the most part, Dr. Cabanés has used documentary evidence of an unimpeachable kind in support of his contentions, but when he comes to consider the last phase of Napoleon's illness—in St. Helena—it would have been better to have quoted the first-hand evidence to be found in the "Lowe Papers" in the British Museum and the documents in the Record Office, if only as a counterbalance to the statements of Montholon and other unswerving adherents to the cause of Napoleon at St. Helena. But, in spite of this, the accusations and recriminations which were indulged in by the parties gathered around that death-bed are treated by Dr. Cabanés with sobriety and judgement.

It is too much to expect that any new facts will be found concerning the illness of Napoleon at St. Helena, for the ground has been thoroughly explored by students in France and England. But Dr. Cabanés has contributed in this book one very important piece of documentary evidence which goes far to set at rest a controversy which arose about ten years ago concerning the authenticity of the two pieces of intestine in the Museum of the Royal College of Surgeons of England. These pieces of intestine were given by O'Meara to Sir Astley Cooper as coming from the body of Napoleon. But in a footnote on page 400, Dr. Cabanés quotes a letter of O'Meara to Sir Astley Cooper, in which O'Meara states in unequivocal terms that he has grave doubts concerning the authenticity of these specimens. It has never been stated who gave the specimens to O'Meara, but if *he* had doubts as to their origin it may well be asked what authority exists for asserting that they came from the body of Napoleon.

[1] *Au Chevet de l'Empereur.* Par le Docteur Cabanés. Paris: Albin Michel. 1924. (Extra post 8vo, pp. 441; illustrated. Fr. 15.)

CANCER RESEARCH.

The Cancer Research Committee of the Middlesex Hospital has published a survey of the various contributions to literature issued from the special research laboratories during the twenty-four years they have been in existence.[2] This survey gives in brief and readable form an idea of the many separate pieces of research undertaken by members of the staff. The hospital is to be congratulated on its policy of encouraging its junior members to spend a year or two in laboratory investigations before entering on the more practical aspects of medicine, and the success which many of these workers have achieved in after years may, in no small measure, be attributed to the methods of disciplined thought acquired or strengthened during the time spent in the laboratory. A bibliographical index of publications at the end of the book shows us that no fewer than 240 papers have emanated from the hospital since the laboratory was founded—a testimony to the industry of the staff. To most aspects of the cancer problem something has been contributed, and the very diversity of the subjects renders it difficult to give a connected story of the work done, but the editor has been familiar with the observations and aims of his former colleagues, and succeeds surprisingly well in his effort. Naturally no critical estimate of the value of the contributions has been attempted, nor is reference made to the progress in cancer research that has taken place elsewhere. It is a book which will be welcomed by old Middlesex men who are keen on the prestige of their school, and may be perused with interest by others who desire to learn what the Middlesex Hospital Cancer Research Laboratories have contributed to the growing knowledge of malignant disease.

SOME OPINIONS ON CANCER.

There is a modern variation of Carlyle's famous sarcasm to the effect that the population of this country is forty millions, most of whom have a theory about cancer. Judging from the correspondence that breaks out occasionally in the lay press, and from the books and pamphlets published, it is the one subject in medicine on which a man who has no special knowledge, and who would not know a cancer if he saw one, feels prompted to expound his views to the world. Most of these writers are firmly convinced that cancer is the result of something we eat or drink, and though each has his own particular bogy, they are all sure that if we could shake off the shackles of civilization and get back to nature—that is, to the habits of the simple savage or the wild animal, to whom alone the secrets of health are revealed—"this terrible scourge which is increasing by leaps and bounds in civilized communities," "this mystery which baffles the medical profession" (and all the other clichés), would cease to afflict us.

Mr. J. Ellis Barker, a journalist who during the last twenty years or more has made many contributions to the English periodical press and published a number of books dealing chiefly with free trade and problems affecting the stability of the British Empire, has now issued a volume in which he sets out the conclusions he has reached with regard to the cause and prevention of cancer. The son, as he tells us, of a German physician, he has, he states, always been interested in medicine, and, having read all that has been written on cancer (a fairly tall order), besides experiencing in his own person the discomforts of an advanced precancerous condition (whatever that may mean), he feels called upon to deliver his thoughts to the public. It is claimed by his sponsor that it is an advantage that Mr. Ellis Barker is not a member of the medical profession, for "medical training might have deprived him of that independence of opinion which he possesses to such a remarkable degree."

To Mr. Ellis Barker's book, which is entitled *Cancer: How it is Caused and How it can be Prevented*,[3] Sir W. Arbuthnot Lane has contributed a preface—four and a half pages of superlative praise—and the reader would be very guileless if he did not thus early harbour a suspicion that he was going to be treated to a disquisition on intestinal stasis. At any rate, Mr. Ellis Barker shows that he is familiar with the writings and arguments of Sir W. Arbuthnot Lane, who has read the manuscript of the book and given the author instruction and advice.

Mr. Barker's great discovery, after long and profound reflection, is that carcinoma (sarcoma for some reason is expressly excluded) is caused by intestinal stasis—or constipation, as the vulgar would say—and this in turn is due to chronic vitamin starvation. Or perhaps it may be the other way about: the author is not quite sure. And it is all due to our dreadful civilization. Uncivilized tribes do not have cancer, at any rate nothing to speak of, and if certain men engaged in cancer research have troubled to find evidence to the contrary that is due to their perversity. The lower animals do not suffer from cancer, with the possible exception of pet dogs, which, as everybody knows, copy the dietetic and constipated habits of their masters. Savages do not suffer from intestinal stasis, for their food is never deficient in vitamins, nor has it been tampered with by the chemists and other food-fakers. This, and much more of it, is "conclusively proved by the overwhelming evidence" of many "distinguished," "famous," or "eminent" men, whose writings are quoted at length. Mr. Barker, of course, cannot be expected to discriminate between "authorities" or to assess the value of their evidence. Perhaps it would be unkind to suggest that a man may be a very eminent plumber without necessarily being a recognized authority on metallurgy. All Mr. Ellis Barker has to say we have heard before, though not at such wearisome length.

OPHTHALMOLOGY AND GENERAL MEDICINE.

In dealing with ocular manifestations in general disease the conditions can be described in one of two ways: the diseases may be taken in order and the various eye disorders met with grouped under each, or the various parts of the eye itself may be dealt with in succession and the ways in which each part may be affected in different diseases recounted. In a volume recently published by MM. Terrien and Cousin[4] both methods have to a certain extent been followed. The book consists of an introduction dealing with the anatomy and physiology of the eye, and three sections. The first section deals with visual acuity, the field of vision, colour perception, binocular vision, the motility of the eye, paralysis of the lids and muscles, squint, ties, and nystagmus. The second section describes the semeiological examination of the eye and its annexes, and the third part the ocular manifestations of general disease.

On the whole the work is very well done and up to date, as evidenced by the good account of encephalitis lethargica, which occupies about four and a half pages; the index, also, is quite full—more complete than is sometimes the case in French books. We are not very pleased with some of the illustrations: the picture of Hutchinson's teeth has been printed upside down, and some of the pictures really show very little; the figure of irido-dialysis displays the lesion at the base of the iris but does not indicate the D-shaped distortion of the pupil; and many of the actual photographs of ocular conditions have come out badly.

We do not know whether there is any other book of a similar kind in the French tongue; if not, we foretell considerable popularity for it in France, but it is doubtful whether any great demand will arise in this country, in view of the excellent works of like nature we already possess.

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[2] *Cancer Research at the Middlesex Hospital, 1900-1924: Retrospect and Prospect.* Compiled by members of the Staff of the Hospital and Medical School, and issued by the authority of the Cancer and General Research Committee. Edited by W. Sampson Handley, M.S., F.R.C.S. London: Published for the Middlesex Hospital Press by John Murray. 1924. (Demy 8vo, pp. ix + 90; 9 plates. 3s. 6d. net.)

[3] *Cancer: How it is Caused and How it can be Prevented.* By J. Ellis Barker. With an introduction by Sir W. Arbuthnot Lane, Bt., C.B., M.S., F.R.C.S., etc. London: John Murray. 1924. (Cr. 8vo, pp. 432. 7s. 6d. net.)

[4] *Affections de l'œil en Médecine générale: Diagnostic et Traitement.* Par F. Terrien et G. Cousin. Paris: Masson et Cie. 1924. (Roy. 8vo, pp. viii + 510; 128 figures. Fr. 40.)

CHEMICAL EXAMINATION OF DUODENAL CONTENTS.

IN his book on the duodenal sound[5] MAX EINHORN gives a brief historical sketch of the precursors of the instrument with which his name is associated. The invention of the stomach pump was the starting-point. When its value in the analysis of the gastric secretion was recognized, efforts were made to extend the field of investigation further down the alimentary tract. In 1889 Boas reported that by introducing the gastric sound into the empty stomach and massaging the liver he had succeeded in obtaining pancreatic secretion. In 1897 Hemmeter claimed to have invented an apparatus by which a tube could be introduced into the duodenum. This consisted of a rubber bag of the shape and size of the stomach and furnished with a tube in its upper margin, along which a sound could be pushed; when the bag was distended within the stomach its distal extremity was assumed to take up a suitable position enabling the sound to enter the duodenum. A year later Kuhn designed a tube which appears to have displaced Hemmeter's instrument. This contained a metal spiral, which gave it a certain degree of stiffness and resilience, and was tentatively pushed to and fro within the stomach until the duodenum was entered.

No further advance, it is said, was made for several years, and Einhorn's instrument was developed from a different standpoint. Desiring to study the motor functions of the bowel, he administered porcelain drops to his patients, recovering them from the stools by means of a sieve. Extending his researches to the digestive functions, he tied fragments of food to the drops and noted the results, and, as a further elaboration of the method, anchored the drops to varying lengths of string by which they could be drawn up again for examination. To prove that the duodenum had been entered a small bag was attached to the porcelain drop, containing a substance to indicate the reaction of the fluid. Proof having thus been obtained that the duodenum could be safely reached, the porcelain drop was replaced by a little bucket, by means of which the duodenal contents could be withdrawn. Wishing to probe still further down the canal, Einhorn used the thread with its porcelain drop as a guide for a catheter passed into the jejunum; this, however, proved unpleasant to the patient, and a return was made to the principle of avoiding artificial pushing and allowing the stomach to act as the motor in the passage of the instrument. Finally, a small, perforated metal capsule was designed, which, attached to a rubber tube one metre in length, was swallowed by the patient. The instrument, its application and uses, is fully described in Max Einhorn's book, together with its modification for intestinal research, in which the tube is extended to a length of twenty feet.

PUERPERAL ECLAMPSIA.

THE fact that practically every organ in the body of the pregnant woman suffering from eclampsia shows pathological changes, as well as the rather variable nature of the changes in any one organ, has been one of the baffling elements in the elucidation of the "disease of theories." It also accounts in some measure for the now enormous and unwieldy literature bearing upon the subject. It has seemed to Dr. HINSELMANN of Bonn that progress in the research into this fell disease would be expedited if the task of inquiry were distributed amongst individuals with special knowledge of different branches of clinical work, of physiology, and of pathology. The obstetrician alone cannot be expected to solve the problem of a condition which affects the body far beyond the confines of the reproductive organs. The author has therefore collected a band of colleagues who are experts in the different aspects of the problem, and set each to write upon his own particular aspect of the disease. The result is a large volume, *Die Eklampsie*,[6] which aims at presenting a summary of the work done up to the present time as a basis for and a stimulus to further research, rather than at reaching any conclusions. Thus, after a general introductory article by the editor, there is a series of special sections dealing particularly with the kidneys, with the liver, the blood and lymph, the peripheral circulation, the biochemistry of eclampsia, the eye changes, the central nervous system, the placenta, and the child in eclamptic pregnancies. The volume concludes with several sections on treatment, to which Professor Stroganoff contributes an article descriptive of his well known method.

The book certainly provides a most useful groundwork for future research, and this should recommend it to all who are studying the problem, were it not that, as so often happens with German books, British, American, and French literature and work are not adequately represented or acknowledged. Some of the pathological articles are well illustrated in colour, and the bibliographies, although far from being exhaustive, will be found useful.

OPERATIVE SURGERY.

PROBABLY the largest treatise ever written on operative surgery is that projected by Dr. W. S. BICKHAM of New York.[7] We gather that there are to be six volumes, and that the complete work will contain between 5,500 and 6,000 pages and over 6,000 illustrations. We have now before us three volumes; the first reached us at the end of February and the third at the end of May. If this rate is maintained the whole should be complete before the end of this year, as apparently the last volume is to consist of a general index; each volume, however, is indexed separately. The author would appear to have been engaged for some ten years in the task, which he describes as "seemingly endless," of compiling these volumes. The result reminds us, in its bulk at least, of the extraordinary labours of medieval scholars.

In the preface he outlines the object he had in view, and recognizes that, dealing as it does primarily with operative technique, it has to with only one of the conditions that must be considered in the safe conduct of the patient to complete recovery. It is, as was to be expected from its bulk, a very comprehensive treatise, covering all the operations of general and special surgery, rehearsing details and mentioning all the steps in an operation and the preparation of the patient to his after-care and general management. The titles given to each operative procedure are as full as the author has been able to make them; for instance, McBurney's operation is entitled "Appendicectomy, by the intramuscular method, McBurney," thus indicating what is done to the appendix, how that organ is approached, and the surgeon whose method is described. The account of all groups of operations is preceded by a short introduction under the headings "surgical anatomy," "landmarks," "general surgical considerations." Each individual operation is likewise discussed under a series of subsections—namely, (*a*) description of the operation; (*b*) preparation of the patient and the selection of the site of operation; (*c*) the position of the patient, the surgeon, and his assistants; (*d*) landmarks for operation; (*e*) the incision: and (*f*) the subsequent steps. Finally we are presented with comments.

The first volume consists of two parts: the first discusses the general procedures employed in operations, including the choice of an anaesthetic, and the second deals with general operative surgery—principles of skin-grafting, plastic surgery, transplantations of tissues and organs, methods of performing amputations and disarticulations, the selection of artificial limbs, and the methods of performing excisions and osteoplastic resections of bones and joints. In the second volume are discussed operative procedures on blood vessels, lymphatics, nerves, bones, muscles, fasciae, tendons, bursae, cartilages, and joints. Finally, there are two large sections on the surgery of the brain and spinal cord. The section on plastic surgery and the correction of deformities by injections is very fully illustrated. The account of amputations and excisions is full

[5] *Die Duodenalsonde und ihre Anwendungsmöglichkeit.* Von Max Einhorn, M.D. Deutsche Uebersetzung von Lillie Oberworth. Leipzig: G. Thieme. 1924. (Demy 8vo, pp. viii + 151; 85 figures. 1.20 dols.; bound, 1.60 dols.)

[6] *Die Eklampsie.* Herausgegeben von Hans Hinselmann. Bonn: Friedrich Cohen. 1924. (Sup. roy. 8vo, pp. vi + 952; 52 figures, 13 plates.)

[7] *Operative Surgery.* By Warren Stone Bickham, New York City, M.D., and Phar. M. Tulane, M.D.Columbia, F.A.C.S. Vols. I, II, and III. Philadelphia and London: W. B. Saunders Co. 1924. (Roy. 8vo. Vol. I, pp. xv + 850, 921 figures; Vol. II, pp. iii + 877, 1,088 figures; Vol. III, pp. iv + 1901, 1,250 figures. 50s. net. per volume, six in all.)

and satisfactory. The thoroughness with which bone surgery is discussed will appear from the fact that at least nine methods are mentioned for the closure of cavities in bone.

The third volume deals with the surgery of the face, neck, breast, and chest, including the special surgery of the ear, nose, throat, and eye—an unusual combination for a book on operative surgery. The section on plastic surgery of the face is profusely illustrated, but we cannot find any allusion to the methods of Gillies and his co-workers in this country—a rather strange omission. In describing the operation for diverticulum of the oesophagus only the method of excision of the sac is discussed, and no mention is made of the operation in two stages or marsupialization of the sac which is popular with many surgeons. The chapters dealing with the surgery of the breast, thyroid, tongue, and ear are concise. Perhaps the best chapters are those on chest surgery. The operations for allowing the chest wall to fall in and of decortication of the visceral pleura are more clearly set forth than in most textbooks on the subject. In the tratment of unilateral pulmonary tuberculosis the author advises the subperiosteal resection of the second to eighth ribs inclusive from their angles to their cartilages. No mention is made of the recently discussed method of extrapleural thoracoplasty, where small sections of the posterior portions of the ribs, first to tenth or eleventh, are excised to achieve the same result.

The illustrations all through the volumes are not only numerous, but so well designed and arranged that in many instances the operation can be followed without reference to the text. The descriptions of the operations are written on a uniform plan. Dr. Bickham has collected and set out a great amount of information not easily to be obtained elsewhere.

NOTES ON BOOKS.

A *Pocket Oxford Dictionary of Current English*[8] has been issued this summer by the Clarendon Press. It is the joint work of the late F. G. FOWLER and his brother, H. W. FOWLER, and is nominally an abridgement of their invaluable *Concise Oxford Dictionary*, first issued in 1911. Both works are therefore based on the great *New English Dictionary* (otherwise known as the Oxford Dictionary, or N.E.D.), of which the tenth and last volume is now appearing in sections. The present book, though it contains nearly as many pages, is narrower and less bulky than the *Concise Oxford Dictionary*, and in the ordinary paper edition can be carried easily in an overcoat pocket; the thinner India paper edition could no doubt be made to fit a coat pocket if the tailor were not looking. In a prefatory note the publishers express their appreciation of the late F. G. Fowler's services to literature and of his skill in planning this dictionary, which they have good reason to describe as a triumph of condensation. The authors' preface mentions the difficulty of squeezing their earlier work, and indicates the changes in method that have been adopted apart from mere reduction of quantity. In the first place, a pronunciation system has been devised in order to make clear how the compilers recommend that every word should be pronounced; secondly, the alphabetical arrangement of phrases within all long articles has been carried as far as possible; thirdly, etymologies have been cut down to little more than bare statements of ultimate origin; and, fourthly, a large number of words and senses not in the former work (some of them by-products of the war) have been included. Whether carried about in the literary workman's pocket or kept in a handy place on the writing table, this admirable little reference book should prove a boon to countless users of the English language.

The second or Summer Number of the sixth volume of the *Annals of Medical History*[9] has Sir William Bowman's portrait on the cover; his life is sketched by Dr. Burton Chance, and is the first of his three biographies of the famous ophthalmologists of the nineteenth century, the other two being Donders and von Graefe. This article is generously illustrated by four full-page plates of microscopic drawings from Bowman's work, *The Physiological Anatomy of Man*. The frontispiece of this instalment represents Carl Weigert, Paul Ehrlich's cousin, the author of a monograph on the lesions of small-pox, which he wrote out six times; in it he first described coagulation-necrosis, and in his "Schiwa" theory, so called after the Hindu god of destruction, opposed Virchow's view that all inflammatory growth is due to the stimulus of external irritants. Dr. Burget writes pleasantly of Lazzaro Spallanzani and his important physiological discoveries; while visiting Bonnet at Geneva Spallanzani met Jean Senebier, of whom Professor C. Greene Cumston elsewhere in this instalment provides a note and a portrait. In his account of Sir William Buttes of Norfolk, physician to Henry VIII, Dr. T. N. Toomey has made considerable additions to our knowledge of the only English physician mentioned by Shakespeare, for Dr. Toomey considers that the John Kaye (Caius) in *The Merry Wives of Windsor* was not an historical person or the real Caius. The editor, Dr. F. R. PACKARD, collects the references to syphilis in Shakespeare's plays, and Dr. M. Charlton of Montreal provides the third part of his outlines of medicine in Lower Canada. James Atkinson of York, who wrote a medical bibliography as far as the end of the letter B, is described by Dr. John Rahräh of Baltimore as an unconscious imitator of Sterne, and as the author of a work which should, after some judicious trimmings, repay republication. Dr. Henry J. John's translation of notes on the surgical clinic of the Charles University, Prague, Bohemia, a hundred years ago, makes the reader feel thankful that he was not one of the patients.

Miss ELIZABETH S. HALDANE'S work on *The British Nurse in Peace and War*[10] is divided into two parts. The first, which consists of five chapters, contains an account of nursing from the earliest times, including the history of St. Bartholomew's Hospital, the London Hospital, and the Edinburgh Royal Infirmary, the teaching work of Miss Nightingale, and the evolution of modern nursing. It is said that the darkest period of nursing was from the later part of the seventeenth century to near the middle of the nineteenth century, when, owing to the influence of Miss Nightingale, a great and momentous change took place. A special chapter devoted to modern nursing contains a short account of the nursing profession in the United States and Canada, and of special branches of nursing, such as district nursing, Poor Law work, public health nursing, private nursing, maternity work, etc. The second part deals with the organization of the nursing profession in the great war both at home and abroad.

[8] *The Pocket Oxford Dictionary of Current English.* Compiled by F. G. Fowler and H. W. Fowler. 1924. Oxford: The Clarendon Press. (3¾×6¼; pp. vi+1,000. 3s. 6d. net; India paper 6s. net.)

[9] *Annals of Medical History* (Summer Number, 1924), vol. vi, No. 2. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber Inc.; London: Baillière, Tindall and Cox. (8¾ × 12½, pp. 143–244; illustrated. Subscription in Great Britain, £2 2s. per volume.)

[10] *The British Nurse in Peace and War.* By Elizabeth S. Haldane, C.H., LL.D. London: John Murray. 1923. (Cr. 8vo, pp. x + 232. 7s. 6d. net.)

A TABLE OF STANDARD DIETS FOR USE IN DIABETES.

BY

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A LARGE number of papers have appeared recently dealing with the insulin treatment of diabetes. All the writers agree that the use of insulin, far from getting rid of the need to regulate the diet, has made a careful control of the food intake more important than ever. The reason for this is that the employment of insulin has introduced the new potential danger of hypoglycaemia from overdosage. Besides this, there seems to be no doubt that the patient stands the best chance of improving his condition if the insulin and the diet are so balanced that the blood sugar level is kept approximately normal. This can only be managed by strict control.

Vast improvements have recently been made in our knowledge of how to diet a diabetic most efficiently. The object to be attained in treating a patient is to give a diet which will yield sufficient calories, will avoid acidosis and glycosuria (or rather hyperglycaemia), and will at the same time rest the pancreas and metabolism generally. Certain basic principles underlie the construction of such a diet.

Even while a patient is resting quietly in bed all day he must burn up a certain number of calories in order to maintain life, and every activity, muscular or mental, must be paid for in additional calories. The basal metabolic weight of a person can be predicted from his size and weight by reference to such tables as those of Du Bois. In addition to the allowance to be made for exercise, etc., a further surplus must be provided to allow for storage in the case of greatly emaciated patients. For these reasons the total

number of calories required can only be guessed at approximately, and no useful purpose is to be served by employing more detailed formulas or tables in calculating the total daily rations.

There are, however, certain other principles which can be applied with advantage in the construction of the diet. The first limit imposed is the patient's difficulty in dealing with more than a small quantity of carbohydrate. Unrestricted use of protein is also to be deprecated since protein tends to hasten the metabolic rate, and this is to be avoided. The minimum supply of protein necessary to make good nitrogen wastage is variously estimated at from 0.5 to 1.5 grams per kilo body weight. This is really a fairly wide difference. Taking the weight of a boy 5 ft. high and 15 years old as 50 kilos, and that of a man 55 years old and 6 ft. high as 75 kilos, the lower values would be 25 to 37.5 grams of protein and the higher estimates 75 to 112.5. The figures at best are therefore arbitrary, and are so divergent that we feel justified in choosing a medium range for the protein and neglecting individual calculations for each patient.

Since fat at 9 calories to the gram is a much more valuable food than protein or carbohydrate at 4 calories per gram, it is desirable for the diabetic to take as much of it as possible. This allows him a diet of higher calorific value and makes up for the deficiency of carbohydrate. But in the case of fat there is also a limit to the amount which can be taken. It is known that in order to permit complete combustion of a unit of fat a certain quantity of carbohydrate must be burnt up at the same time. When an excess of fat is broken up, some is only partially combusted, and in consequence dangerous ketone bodies appear in the blood and urine and give rise to acidosis. The correct ratio of carbohydrate to fat is shown by the formulas of Woodyatt. In calculating the glucose and fatty substances in the diet, it must not be forgotten that under certain conditions some of the protein, instead of being built up into the tissues, may become transformed into either fat or carbohydrate. Woodyatt has shown that in estimating the total available glucose ("G.") there must be included 100 per cent. of the carbohydrate, 58 per cent. of the protein, and 10 per cent. of the fat (glycerin fraction), while in addition to the remaining 90 per cent. of the fat, 46 per cent. of the protein *may* yield fatty substances ("F.A."). Every gram of "G." in the diet will allow of the complete combustion of $1\frac{1}{2}$ grams of "F.A." The maximum amount of fat that can be included in a diet without the appearance of acid bodies is shown approximately by the formula $F.A. = 2C. + \frac{1}{2}P.$ Practical experience of the use of these formulas has taught us their immense value.

If consideration has to be given to all these points in the construction of a diet the process becomes complicated enough, and when new diets have to be drawn up daily during treatment the process is so time-consuming as to be impracticable for the busy man. The difficulty can be got over in hospitals where large numbers of diabetics are under treatment at the same time by delegating the duties to a competent dietitian or by the use of standard diet tables.

Appended are the tables which we employ. A great deal has been written about the necessity for individualization of the patient, and with that we agree. But the use of such a table as that given does not make this impossible. The daily summaries serve as a basis, and modifications can readily be made as required to suit the patient. The diets are not really so monotonous as they appear, since the range of vegetables is considerable, the heading "meat" includes chicken, rabbit, etc., which are approximately the same value as beef, and the eggs, etc., can be served in various ways. The real limit to variety is the relatively small quantity of protein present.

The advantages of a graduated series of standard diets seem obvious enough. They benefit both the patient and his attendants. The tables are easily used, and their employment greatly simplifies the dieting of diabetics. The diets have been drawn up so as to yield a certain number of calories. A step of 100 calories between each summary allows of a sufficiently gradual advance. Since the G.:F.A. ratio has been carefully balanced, the amount of the protein and the quantity of carbohydrate also increase very gradually. The diets are divided into four classes, constructed for different purposes.

Group "A" diets are for cases who show clinical signs of acidosis, dyspnoea, acetone in the breath, etc. They contain a relatively large proportion of readily available carbohydrate, and have a G.:F.A. ratio of about 2:1. This excess of glucose is sufficient to aid the complete combustion of a considerable amount of fat. Another result of the use of this series is that glycosuria may be increased, but removal of the ketones is so important that the glycosuria can be neglected for the time being. Insulin should always be employed with the "A" diets.

The remaining diet summaries—B, C, and D—can equally well be employed with or without insulin, and have also been used for mild or ambulant cases.

Group "B" diets are intended to "desugarize" the patient. The G.:F.A. ratio in this series is 1:1, which still leaves a considerable margin for dealing with extra fat. This is necessary because the diets in this group are below the amount required to maintain the basal metabolism and the body stores of fat or protein have to be called upon to make up the deficiency. All cases, if free from clinical acidosis when first seen, are put on B 15 at once. Mild cases may become sugar-free on three or four days of B 15 or after a further three days on B 12. Lower diets are only given to such ambulant cases as are in good physical condition and are practically free from acetone. More severe cases are usually put to bed, while the diets are dropped below basal levels. The rate of lowering the diets varies. Sometimes the patient remains a day or two on each level, often he drops rapidly from B 15 to B 7 and B 3. Usually the urine becomes sugar-free without the subject actually requiring to starve. When this stage is reached the patient is transferred to the dietary ladder (Group "C" diets), starting with a diet having about the same G. value as the last "B" diet or slightly less.

Group "C" diets form an increasing series which are used to test the limit of the patient's tolerance and which serve for a time as low maintenance diets. When time permits the increase in diets should be very slow. So long as the urine remains sugar-free the patient advances each day or each second day in most severe cases. Should sugar reappear he drops for one day to a diet of about half the value, then comes back to the highest diet on which he was sugar-free, and thereafter attempts to advance again. Often this is successful, but eventually a point is reached which the patient cannot pass. This is the limit of his tolerance *at the moment*. Where it is at all feasible the patient should advance to this point without the use of insulin, so that his unaided capacity may be gauged. Insulin need only be given in those cases where the limit is too restricted to permit of a useful life being led; it is not required when the patient's tolerance is fairly good. Ten units of insulin should allow the addition of about 200 or 300 calories. The patient may be kept on a diet of this class for some months or indefinitely. The small amount of protein, however, restricts the choice of foodstuffs, and for those patients who wish a change or who require more protein the Group "D" or maintenance diets are provided.

A weekly low day on which about half rations are consumed is essential for cases who take no insulin, and even where insulin is being administered it is well to observe the same custom. It appears to be quite satisfactory to control the progress of the case by examining a sample of the collected urine for the twenty-four hours, blood sugar sampling being unnecessary.

The figures given in each horizontal line of Table I represent the daily total, which has to be divided into suitable meals. This offers little difficulty, and often can be left to the patient. When no insulin is being given the food is divided up as equally as possible. If insulin is being used the carbohydrate should be so distributed as to be "covered" by the drug.

It will be noticed that the greatest amount of carbohydrate is in the form of unsweetened oatcake or porridge. This is because we believe that the diabetic can tolerate oatmeal better than other forms of starchy food, owing to its being more slowly absorbed. An ounce of dry oatmeal

TABLE I.—STANDARD DIETS.

DIETS.	Milk.	20% Cream.	5% Vegetable.	Eggs.	Lean Meat.	Clear Soup.	Bacon.	Butter.	Oatcake.	Dry Meal (as porridge).	White Bread.	Potato.	Cheese.	Orange Pulp.	Olive Oil.	White Fish.	GRAMS. Carbohydrates.	Protein.	Fat.	G.	Ratio.	F.A.	TOTAL CALORIES.
GROUP A.																							
A 24	20			2	3	16		1		3	6½	4		16½		4	271.5	127.8	91.2	354	2.5 : 1	142	2419
A 20	20			2	2	16		¾		2	6½	4		8½		2½	226	106	76	294	2.5 : 1	117	2014
A 17	20		6½	2	3	10		¾		1½	5	3					164.25	89	76	224	2 : 1	109	1700
GROUP B.																							
B 18	5½		11½	2	2½	8	2	2½	3	1½							94.25	76.3	130.5	152	1 : 1	152	1856
B 15	2		16½	2	2		1½	2¼	4								78	60	106.5	124	1 : 1	124	1510
B 12	3		16½	2	1		1	2	3								64.5	46.75	89.5	102	1 : 1	102	1244
B 9	2		15	2	1		1	1	2								46.5	41.25	62	76	1 : 1	76	909
B 7	2	1	11½	1	1		1	¾	1½								37	32.85	52.85	61	1 : 1	63	755
B 5		2½	13½	1				½	½							2	22	28.4	34.25	43	1 : 1	44	510
B 3	2	2	11½	1													15	15	20	26	1 : 1	25	300
Starve day.*	2																3	2	2				38

* Tea, coffee, and bovril *ad lib.*
If not sugar-free give coffee only every two hours till urine has been free of sugar for 24 hours.

GROUP C.																							
Starve day.*			8½														7.5	3.75		9	1 : 0.2	2	45
C 1			16½														15	7.5		19	1 : 0.2	3	90
C 3	2	2	11	1													15	15	20	26	1 : 1	25	300
C 5	2	1	16½	1	1	8		½									19	29.5	34	39	1 : 1.1	44	500
C 7	2	2	16½	2	1	8		¾	½								25	37.75	50.5	51	1 : 1.2	62	705
C 9	2	2	18½	2	1	8		1½	¾								31.5	39.75	72	62	1 : 1.3	83	900
C 11	2	4	16½	2	1		1	1¼	1								37	42.25	88.5	70	1 : 1.4	98	1114
C 13	2	4	20	2	1		1	1¾	1½								47.5	45.6	104	85	1 : 1.4	115	1308
C 15	2	4	20	2	1	7	1	2½	1¾								50	50.25	122.5	91	1 : 1.5	133	1500
C 17	2	4	20	3	1	7	1	2¾	2								55	57.5	139.5	101	1 : 1.5	151	1701
C 19	2	4	20	3	1	7	1	3½	2	½							62.75	60.5	157.25	113	1 : 1.5	169	1908
C 20	2	4	20	3	1	7	1	3¾	1½	1							68	60.6	166.25	119	1 : 1.5	177	2010
C 21	2	3	20	3	1½	7	1	4¼	1½	1		1					70.5	64	172.5	124	1 : 1.5	185	2100
C 22	2	3	20	3	2	7	1	4	1½	1		1½			1		73.5	68.5	181.5	130	1 : 1.5	195	2201
C 23	2	3	19	3	2	7	1	4	1½	1¼		1½			1½		77.6	69.4	190.5	136	1 : 1.5	203	2302
C 24	2	3	16½	3	2	7	1	4	1½	1½		1½			2		80.75	69.5	200	141	1 : 1.5	211	2401
C 25	2	3	16½	3	2	7	1	4	1¾	1½		1½			2½		85.75	70.75	210.5	148	1 : 1.5	222	2520
C 26	2	3	16½	3	2	7	1	4	2	1½		2			2¾		91.25	72	220.75	155	1 : 1.5	231	2639
C 28	2	3	16½	3	2	7	1	4	2½	1½		2			4¼		98.75	74	238	165	1 : 1.5	248	2837

* Tea, coffee, and bovril *ad lib.*

High Maintenance GROUP D.																							
D 20	4	4	15	3	2	8	2	2¼	2½				1				61	80.75	164.25	124	1 : 1.5	185	2045
D 21	1	4	15	3	2½	8	2	2¾	2½			1	1				62.5	82.75	170	127	1 : 1.5	191	2112
D 22	1	4	15	3	3	8	2	3	2½			1½	1				65.5	87.25	177.75	134	1 : 1.5	200	2211
D 23	4	4½	15	3	3	8	2	3	2½			1½	1				70.5	90.75	187.25	142	1 : 1.5	210	2330
D 24	4	4½	15	3	3	8	2	3¼	2½			2	1				73.5	91.25	195.25	146	1 : 1.5	218	2416
D 25	4	4½	15	3	3	8	2	3½	2¼	½		2	1				79	92.85	204	153	1 : 1.5	225	2513
D 26	4	4½	15	3	3	8	2½	3½	2½	½		2	1				81.5	96	211.5	158	1 : 1.5	234	2613
D 27	4	4½	15	3	3	8	2½	3¾	2¼	¾		2	1½				84	99.75	211	163	1 : 1.5	245	2723
D 28	4	4½	13	2	2½	8	2½	4	2¼	1		2	1½		1	2	87.5	103	228	170	1 : 1.5	252	2816
D 29	4	4½	13	2	2½	8	2½	4	2¼	1¼		2	1½		1¼	2	92.5	104	236.5	176	1 : 1.5	260	2912
D 30	4	4½	13	2	2½	8	2½	4	2	1½		2	1½		2	2	95.25	105	247	180	1 : 1.5	270	3020
D 31	4	4½	13	2	2½	8	2½	4	2¼	1½		2	1½		2¼	2	99	106	256	185	1 : 1.5	279	3124
D 32	4	4½	13	2	2½	8	2½	4	2½	1½		2	1½		2½	2	102.75	107	262	191	1 : 1.5	285	3203
D 33	4	4½	13	2	2½	8	2½	4	2¾	1½		2	1½		3½	2½	105.25	108	271	195	1 : 1.5	295	3301

N.B.—The measure for olive oil is a tablespoonful. The other figures indicate ounces except in the case of eggs. Oatmeal is shown in ounces (dry weight) before being made into porridge.

makes about four tablespoonfuls of porridge. Oatcake and porridge are interchangeable in the proportion of 1 oz. oatcake=3 tablespoonfuls porridge. White bread has a calorific value very similar to that of oatcake, and a small quantity of it may replace the oatcake from time to time. We find, however, that large amounts of oatcake can be tolerated by patients who at once show sugar when a small quantity of bread is taken.

One of the difficulties in following out the régime of balanced dieting is the presence of large quantities of fat in the higher diets. Four ounces of butter is difficult to dispose of unless sufficient solid food is provided to carry it. It is therefore convenient to serve most of the starchy food as oatcake rather than porridge. If salad oil cannot be taken butter should replace it, and the excess of this can be served with the eggs or as sauce with the meat, fish, or potato. Tea, coffee, and bovril have no calorific value, and can be taken within reason with all these diets. They are required in considerable amount on those days when the diet is extremely low.

Vegetables containing 5 per cent. carbohydrate include: Lettuce, cucumber, spinach, asparagus, rhubarb, endive, marrow, celery, mushroom, tomato, brussels sprouts, watercress, sea-kale, cauliflower, cabbage, radishes, leeks, broccoli.

Vegetables containing 10 per cent. carbohydrate include: French beans (young), turnip, carrots, onions, green peas (canned).

After the patient has been for some time on a maintenance diet he may be taught to vary it by substituting articles selected from a suitable list, or may even build up a complete menu to a prescription of so many grams of carbohydrate, protein, and fat yielding the desired number of calories. Food values for this purpose are to be found in the food tables of Harrison and Lawrence, and many other publications.

TABLE II.—*Quantity of Carbohydrate, Protein, and Fat in 30 grams, or cubic centimetres, or in 1 oz.*

	Carbohydrates.	Protein.	Fat.	Calories.
Milk	1.5	1	1	19
Skim milk	1.5	1	0.09	11
Buttermilk	1.5	1	0.15	11
Whey	1.5	0.25	0.09	8
20 per cent. cream	1	1	6	62
5 per cent. vegetable	1	0.5	0	6
10 per cent. vegetable ...	2	0.5	0	10
Eggs, each	0	6	6	78
Lean meat	0	8	5	77
Chicken	0	8	5	77
Boiled chicken without gravy	0	8	3	59
Bacon	0	5	15	155
Lean ham	0	6	6.5	83
Butter	0	0	25	225
Oatmeal	20	5	2	118
Oatcake	15	3.75	1.5	89
Porridge	10	2.5	1	60
White bread	16	3	0.5	81
Potato	6	1	0	28
Orange pulp	3	0	0	12
Cheese (average)	0	8	11	131
Olive oil (two tablespoonfuls)	0	0	30	270
Boiled fish	0	6	0	24
Clear soup	0	0.6	0.25	5

Summary.

It is pointed out that the directions usually given for drawing up individual diets are too complicated to be universally serviceable. A carefully balanced dietary scale is submitted to serve as a basis for treatment. The methods to be followed to clear up acidosis, to get rid of glycosuria, and to test the patient's carbohydrate food tolerance are also described.

THE STATE OF THE PUBLIC HEALTH.

SIR GEORGE NEWMAN'S REPORT FOR 1923.

[FIRST NOTICE.]

THE annual report of the Chief Medical Officer of the Ministry of Health for 1923[1] is the fifth made under the Ministry, but is the sixty-sixth of the series begun by Sir John Simon under the Privy Council and carried on by his successors under the Local Government Board.

Sir George Newman begins by pointing out that as there is no system of registration of sickness the sources of information available in considering the state of the public health are the returns made by the Registrar-General relating to births, deaths, and infectious disease, and the data and records in respect of invalidity under the National Health Insurance Acts. The information so available is, however, supplemented by annual and special reports of medical officers of health, by the results of investigations by medical officers of the Ministry and by other Government departments interested in the physical, industrial, and social welfare of the people.

AGE AND SEX DISTRIBUTION OF THE POPULATION.

The following table is given showing the age distribution of the population of England and Wales according to the censuses of 1841, 1911, and 1921.

Age.	1841.			1911.			1921.		
	M.	F.	Persons.	M.	F.	Persons.	M.	F.	Persons.
0-5	6,587	6,649	13,236	5,368	5,319	10,687	4,438	4,329	8,767
5-10	5,989	5,981	11,970	5,121	5,128	10,249	4,663	4,625	9,288
10-15	5,533	5,352	10,885	4,845	4,858	9,703	4,849	4,811	9,660
15-20	4,912	5,060	9,972	4,588	4,662	9,250	4,561	4,686	9,247
20-25	4,546	5,196	9,742	4,166	4,638	8,804	3,823	4,495	8,318
25-35	7,388	8,006	15,394	7,850	8,662	16,512	6,919	8,288	15,207
35-45	5,471	5,667	11,138	6,477	6,957	13,434	6,589	7,522	14,111
45-55	3,900	4,099	7,999	4,698	5,084	9,782	5,630	6,036	11,666
55-65	2,506	2,720	5,226	3,009	3,364	6,373	3,650	4,038	7,688
65-75	1,412	1,628	3,040	1,671	2,100	3,771	1,926	2,410	4,335
75-85	545	651	1,196	509	749	1,258	595	916	1,511
85-	83	119	202	63	114	177	66	135	201
	48,872	51,128	100,000	48,365	51,635	100,000	47,709	52,291	100,000

M. = Males. F. = Females.

Upon this table Sir George Newman makes the following observations:

"It will be seen that the indirect consequence of the war, in accelerating the decline of the birth rate, has been much greater than the direct effect, the destruction of young male adults. This latter consequence is brought about in (*a*) the decreased proportion of males of 15-35, who formed 16.8 per cent. of the population in 1841 and almost as many (16.6 per cent.) in 1911, but only 15.3 per cent. in 1921; (*b*) the increased proportion of females to males, 51.1 per cent. of the population in 1841, 51.6 per cent. in 1911, and 52.3 per cent. in 1921. But owing to the declining birth rate, a decline temporarily accelerated by the war, the change in the proportion of children has been much greater. In 1841, children under 5 constituted 13.2 per cent. of the population; by 1911—after rather more than thirty years of a declining birth rate—the proportion had declined to 10.7 per cent., a decrement of 2.5 per cent. In 1921 only 8.8 per cent. of the population were under 5 years of age; the decrease in these ten years was more than 78 per cent. of the whole decrease over the previous seventy years and two and a half times as great as between 1901 and 1911. The proportion of young children was only 66 per cent. of what it had been eighty years ago. On the other hand, the proportion of persons over 65 was 76 per cent. greater than in 1841. In 1921, for the first time, the first quinquennium of life did not contain a larger number of living persons than any other quinquennial group of ages. Even

[1] *The State of the Public Health.* Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1923. H.M. Stationery Office. (Med. 8vo, pp. 212. Price 3s. net.)

in 1911 there were more children under 5 than persons in any other quinquennial group, but in 1921 the most populous age group was 10-15. By 1923 it was estimated that the proportion of males aged 0-5 had increased sufficiently to make this the most populous group, but the maximum for females was in the age group 15-20."

Birth Rate and Death Rate.

The number of births recorded in England and Wales in 1923 was 758,131, which was equivalent to a birth rate of 19.7 per 1,000 of population. This marked a decline of 0.7 per 1,000 on the previous year, and of 5.8 as compared with 1920. The death rate was 11.6 per 1,000 persons living, or 1.2 per 1,000 lower than in the previous year, and the lowest in the history of the country. In 1923 there were 21,993 fewer births and 41,994 fewer deaths than in 1922.

Before 1896, although the birth rate was declining, the decline was irregular; from 1896 to 1914, the last year for which the rates of married women have been published, the decline was regular, and by extending the curve obtained from the figures for those years it has become possible to calculate the probable birth rate in succeeding years. The figures down to 1921 have not yet been published, but they have been made available for the purposes of this report, and it is found that the calculated rate per 1,000 married women aged 15 to 45 for 1921 was 172.6; the actual figure was 176.3. It is estimated that France in 1910-11 (a year in which deaths somewhat exceeded births) had a fertility of 133 per 1,000 married women aged 15 to 45. It is considered that this country may expect to reach that point in fourteen or fifteen years if the present trend continues, but even so the population would not be stationary, as our death rate is a good deal lower than that of France in 1910-11. In England and Wales in 1921, although the birth rate in terms of married women was 29 per cent. smaller than in 1896, the excess of births over deaths was slightly larger—390,185 in 1921, and 388,604 in 1896. It is therefore considered unlikely that the population of England and Wales will become stationary in this generation.

Judged by its rate of mortality 1923 was the healthiest year ever known in this country, and such statistics as are available of sickness seem to point in the same direction. Some part of this favourable result is to be attributed to escape from certain infectious diseases, such as influenza, for which immunity neither the public nor the medical profession can take credit. At the same time there is good evidence that the work of sanitary authorities is exerting a beneficent influence in the reduction of disease and the increase of the public health. From a table in which the principal causes of death are classified it appears that the largest number of deaths due to any one of these causes was attributable to diseases of the heart; next comes cancer, and next diseases of the nervous system; each of these causes was responsible for more than 10 per cent. of the total number of deaths from all causes. Tuberculosis comes next, then bronchitis, and then pneumonia; but if diseases of the respiratory system, including pneumonia and bronchitis, be taken together, they caused more deaths than those of any other system (about 16 per cent.).

Infant Mortality.—As already said, infantile mortality in 1923 was lower than in any preceding year. A tendency to decline shown in the quinquennium 1901-5 has been accelerated in a remarkable way since 1918. A table of the infant death rate per 1,000 births registered for various age periods since 1881 shows that the reduction is affecting mainly the age period three to twelve months. There has also been a fairly regular reduction in the rate for the age period from four weeks to three months, but the rate under four weeks still remains high, although there are indications that ante-natal work is beginning to have effect. The fact that there has been no corresponding reduction in the number of deaths among women in childbirth, that there has in fact been little or no improvement in this respect since 1894, is one of the problems which demands and is receiving the attention of the medical profession and of the health authorities at this time.

Tuberculosis.

Tuberculosis notifications increased slightly during 1923; this may have been due in part to the stimulus afforded by the increased provision by local authorities of residential treatment for non-pulmonary tuberculosis, and in part possibly to the circular sent out in August reminding practitioners of the statutory duty to notify cases of tuberculosis within forty-eight hours of their discovery. The death rate, both for pulmonary and non-pulmonary tuberculosis, was the lowest on record. This is to be associated with the fact, already mentioned, that 1923, judged by its general mortality rate, was the healthiest year ever known in this country. Over 20,000 beds were available for tuberculosis patients, and on March 1st, 1924, 16,458 were occupied by patients, including 4,569 children. Tuberculosis work was also being carried on in 446 dispensaries by 340 tuberculosis officers. A warning is given against the tendency in several areas to conduct the tuberculosis dispensary on the lines of an out-patient department of a general hospital, as if the only object was the treatment of individuals. This conception seems to ignore the wider function of the dispensary as the co-ordinating centre in the struggle against a national menace. In the case of insured persons the tuberculosis officer should consider himself rather as a consultant than as the person primarily responsible for routine treatment, and close co-operation with the insurance practitioner is urged. A circular dealing with this latter point was issued in December, 1923, and was noted in our columns on January 5th, 1924 (Supplement, p. 26). In June, 1923, another circular had dealt with closer co-operation between local authorities and boards of guardians in London, in order to make the services of the tuberculosis officer available in Poor Law cases; a third circular in December, 1923, urged co-ordination between the medical officer of health of urban and rural districts and the county authorities. Such co-operation is necessary if a comprehensive preventive attack is to be made on the disease.

The Ministry conducted an inquiry during the year into the cost of residential institutions, and published a report of the returns in December, 1923 (Memorandum 87/T), noted in our columns on December 22nd (p. 1239). Wide differences in expenditure were brought to light, and therefore it is again recommended that this memorandum should be studied carefully by the managers of various institutions, so that still greater economy may be secured without impairing efficiency. Sir George Newman considers that pessimism as to the value of sanatorium treatment is not justified, inasmuch as information published in various countries indicates that this form of treatment has assisted in the cure of a considerable number of cases of tuberculosis, and in lengthening many useful lives. He admits, however, that the duration of treatment should be extended, and that early diagnosis is essential if the maximum good is to be obtained. Extension of treatment involves occupational training in a sanatorium, and the report contains an interesting note of the appointment by the Leicester City Council of a social welfare officer at its sanatorium, whose duty it is to provide work for the patients and to organize their recreations. The Ministry approved this appointment as an experiment for one year; the scheme, it is said, has worked well. Vocational training, village settlements, and after-care measures are also considered in the report. Up to March 31st, 1924, 370 men had been discharged after completing satisfactorily their courses of training, and 438 men were still receiving instruction. Elementary tuition in business methods was also provided so as to enable the men to set up their own businesses and find a remunerative outlet for their labour. The report concludes with an account of various forms of treatment and diagnosis, including artificial pneumothorax, *x* rays, diathermy, bacteriological and serological diagnosis, heliotherapy, and vaccine treatment. The value of Professor Dreyer's diaplyte antigen is being tested, and though it is already clear that it is not effective as a rapid curative agent in well established pulmonary tuberculosis, yet there is reason to believe that it is very beneficial in certain types of tuberculous infection.

British Medical Journal.

SATURDAY, AUGUST 23rd, 1924.

LONDON UNIVERSITY AND THE MEDICAL SCHOOLS.

The death of Sir Sydney Russell-Wells, who succeeded Sir Philip Magnus as parliamentary representative of the University of London at the general election in 1922, has caused a vacancy which is to be filled up after the long vacation. As has often happened before, there are three candidates: Sir John Rose Bradford, F.R.S., Holme lecturer of clinical medicine in University College Hospital Medical School, nominated by the Unionist Association; Dr. A. F. Pollard, the historian, professor of English history in the University (University College), nominated by the Liberal Association; and Dr. E. Graham Little, a member of the senate of the University, who has been nominated as a non-political candidate by the Graduates' Association, of which he is president. At the election in December last the majority of the Unionist candidate over the combined poll of the other two candidates—Professor Pollard and Mr. H. G. Wells the novelist, who stood as a Labour Socialist—was small, and on this occasion the result may be determined in some measure by questions of university politics.

The internal question at issue has to do in the first place with the granting by the University of degrees to external students. The electoral roll includes the names of a large number of graduates, especially in the Faculty of Arts, who have never been students in any London college, and have no direct knowledge of, or any sympathy with, the educational needs of London. The Royal Commission on University Education in London considered that the abolition of external degrees was desirable in the interests alike of schools, teachers, and students in London, but recognized that it would not be politic for the University at present to abandon the granting of degrees on the result of examination alone. The Commission proposed a scheme under which external students might still be admitted to the examinations for all degrees except those of medicine and technology, but coupled with it a strongly expressed recommendation that the practice should be brought to an end as early as might prove practicable.

It is over fifteen years since the Royal Commission was appointed, and more than eleven since its final report was published. Only a few of its recommendations have been carried out; many of them would have involved the provision of a much larger annual income than the University and its constituent colleges and schools had at their disposal. Something has been done towards remedying this deficiency by contributions from various sources—chiefly, we believe, by the increase of the parliamentary grant. The recommendation for the introduction into London of the so-called unit system of medical education, which contemplated the establishment of three medical colleges in London, has been carried out, and has had its influence on other medical schools in London and elsewhere in England. Another principle enunciated by the Commission—that the intermediate sciences, anatomy, physiology, and pharmacology, should be taught in an institution separate from the medical college but in close connexion with it—appears to be working well where it has been put into operation. Other recommendations have not yet been carried out for other reasons than want of money. University College and King's College have cast in their lot with the University, as the Royal Commission advised, but the Imperial College of Science and Technology has declined to become a constituent part of the University on the ground, if we understand the attitude of the governors aright, that they are not disposed to submit to the authority of the senate as at present constituted. Other interests also criticize the constitution of the senate, on the ground, chiefly, that it is "autocratic." The Imperial College claims to be in itself virtually a science and technical university of three faculties—science, mining, and engineering—fully equipped for teaching and research, and entitled to enjoy all the privileges of a university, including that of granting degrees. The Inns of Court, which together form something like a legal university, have never come within the sphere of influence of the University, and in the other faculty in which London has always been strong the medical schools have followed their own natural line of development, and form part of the University rather as a polite or politic fiction than in fact.

The history of the University of London is one of continual change imposed on it from without; sometimes it has seemed little better than meddling. Though in the far-away days of Thomas Young, the poet, and his supporters, its foundation was a response to a genuine movement of opinion, it has never really grown into the educational life of London. The strength of the motives by which the original promoters were actuated was greatly diminished by the abolition of ecclesiastical tests at Oxford and Cambridge, and still more by the foundation of universities in many provincial centres. The latter in particular removed one of the chief reasons why the University of London should grant external degrees, and, as has been said, the Royal Commission thought that the sooner the power was abandoned the better it would be for university education in London.

In the course of his speech on the estimates, on July 22nd, the President of the Board of Education said that he had spent "considerable time in exploring the possibility of getting a statutory settlement of London University"; and in reply to a direct inquiry he stated, on August 7th, that he proposed to appoint a departmental committee in order to lay down the basis upon which a statutory commission could act. He had, he said, taken this course after reviewing the present position and consulting with a selection of the most important academic authorities. He added that while there was a strong desire for reform in many quarters, there was also a general feeling that some of the findings of the Royal Commission called for reconsideration in view of the long period which had elapsed since it reported. Lord Ernle is to be chairman of the new Departmental Committee; the other members have not yet been announced, and until the terms of reference are known no useful comment can be made. It may be hoped, however, that the Committee will be very chary in interfering with existing medical arrangements. The unit system is only just getting into good working order, and, though it is open to criticism in some directions, it is, we believe, true to say that the large majority of the members of the staffs of the units consider that good work is being

done, and that their main regret is the want of any very sure prospect of promotion. From the administrative point of view the medical schools had much better be left to work out their own salvation.

UNIFORMITY OF MEAT INSPECTION.

MEAT inspection has been defined as the professional investigation and judgement on the entrails and meat of slaughtered animals with reference to their fitness as human food, and it includes also the supervision of public and private slaughterhouses. As thus defined the amount of meat inspection carried out in this country, if we except the large towns, is negligible. Indeed, it would almost appear as though the Legislature intended this, for unless rural district councils obtain at some cost urban powers they cannot supervise slaughterhouses or the irregular slaughter of animals for human consumption. Even in the towns there is no great uniformity in the detailed methods of inspection, although in recent years this defect has become less conspicuous as a result of special courses of instruction given by the Royal Sanitary Institute and other bodies. In this connexion it is satisfactory to find that the London County Council has decided, in co-operation with organizations representing the meat trade, to open a new institute, to be called the "Smithfield Institute," for the training and instruction of men and boys employed in the meat trade. The absence of uniformity of inspection was emphasized by Dr. W. J. Howarth, C.B.E., in the Milroy Lectures delivered by him before the Royal College of Physicians of London in 1917. This lack of uniformity, he maintained, afforded opportunities for the practice of much deceit, with the result that both the public and the honest trader were prejudiced—the former since it was possible for meat of unsound character to be sold, and the latter because he was handicapped in trade by a competitor who took advantage of the local negligence known to exist.

The Scottish Board of Health has made a determined effort to remedy the existing conditions so far as Scotland is concerned, and has drawn up regulations (the "Public Health (Meat) Regulations (Scotland), 1924"), which came into force on August 1st last. They deserve careful study, for they are the outcome of recommendations made by three committees appointed by the Board, which dealt respectively with questions of administration, with inspection in rural areas, and with the system and standard of meat inspection to be adopted. The chairman of each of these committees was Dr. Gerald Leighton, the medical officer of the Foods Department of the Board, and he has now prepared a small handbook[1] in which the regulations are annotated and explained. The duty of administering the regulations is to be carried out by a trained meat inspector, though a new class of official, to be called the detention officer, may be employed in smaller areas. A meat inspector can no longer be any person, whether competent or not, to whom a local authority entrusts the duty of inspection. He must be either the medical officer of health for the district or a veterinary surgeon, or he must have received special training in the work of meat inspection—that is to say, he must have had, prior to June 1st, 1923, not less than seven years' practical experience in the work, and have obtained from the Board of Health a certificate of competency. It is realized that in certain areas it will be impracticable to have a qualified meat inspector, and in these a detention officer may be appointed; he must have had sufficient experience and training to enable him to recognize any departure from the normal in the carcass, organs, or viscera of an animal. It will be his duty to detain suspected meat, but he has no power to seize or condemn. This is a new procedure in British administration, and it is anticipated that it will be of assistance in securing uniformity.

In the two schedules to the regulations instructions are given with reference to the details of inspection and as to the records to be kept with respect to inspections and seizures. The manner in which the actual inspection should be carried out in well ordered sequence is clearly expressed in the first schedule, and to each separate instruction Dr. Leighton has added a paragraph giving the reason for it. The result leaves little to be desired, and the handbook might with advantage be included in the equipment of many medical officers of health and inspectors beyond the borders of Scotland.

It is not the first time that Scotland has led the way in a public health reform; the regulations in which this new uniform standard of judgement are set out are compulsory in Scotland, and have been issued by the Ministry of Health as a recommendation to be followed by meat inspectors in England. The next step should be to make them compulsory south of the Tweed.

[1] *Pocket Handbook of Meat Inspection: A Guide to the Public Health (Meat) Regulations (Scotland), 1924.* By Gerald Leighton, M.D., F.R.S.E., Medical Officer (Foods), Scottish Board of Health. Edinburgh and London: William Hodge and Co., Ltd. 1924. (Fcap. 8vo, pp. viii + 126. 6s. net.)

THE ANTIRACHITIC ACTION OF MILK.

THE protection of children from rickets is a sociological problem of great importance. We know that exposure to sunlight is an excellent prophylactic measure, but unfortunately sunlight is rarely available in an English town in winter, since the beams that struggle through the clouds are effectively cut off by the smoke pall that disgraces all our large towns. It is therefore very necessary to feed infants on a diet containing an adequate amount of the antirachitic factor, and hence the antirachitic value of milk is a question of the greatest interest. The relative importance in the causation of rickets of light deficiency and of a diet deficient in vitamins has been a subject of controversy for several years, but some interesting facts have been brought to light by an investigation recently conducted by Miss Ethel M. Luce at the Lister Institute.[1] A single cow was kept under varying conditions for more than a year, and the growth-promoting and antirachitic actions of her milk upon young rats was tested every month. When the cow was on dry fodder in a dark stall (six months) the growth-promoting and antirachitic properties of the milk were poor; when the cow was on fresh green fodder in a dark stall (two months) the growth-promoting effect was good, but the antirachitic effect poor. On pasture (three months) both were good; on dry fodder out of doors (two months) the growth-promoting properties were poor and the antirachitic moderate. The "good" milk had about four times the activity of the "poor" milk. These observations appear to indicate that the growth-promoting or vitamin-A factor in milk is not identical with the antirachitic factor, and, further, that the two factors can vary independently. There is a considerable amount of collateral evidence for these conclusions. It would seem that the amount of growth-promoting factor in cow's milk depends mainly, if not entirely, on the diet, whilst the amount of antirachitic factor is determined partly by the diet and partly by the amount of light to which the cow is exposed. These

[1] *Biochem. Journ.*, 1924, xviii, p. 716.

conclusions are of considerable practical importance, for they lend strong support to the view that the milk of pasture-fed cows is greatly superior to that of animals fed on dry fodder. This superiority is equally evident in the growth-promoting and the antirachitic properties of the milk, for when cows are stall fed on green fodder their milk is satisfactory as regards growth-promoting qualities, but not as regards antirachitic properties. We find in this experiment support, also, for the belief that during the winter months there is a danger of infants developing rickets even when they are receiving large quantities of cow's milk. This is a view that Hess has long maintained. The liability to rickets is, of course, lessened by exposure to sunlight or to ultra-violet light, but these are not always available. Fortunately all available evidence agrees in showing that cod-liver oil contains a relatively enormous amount of the antirachitic factor, and the prophylactic use of this oil appears to be the means most generally available for the prevention of rickets.

SOME MEDICAL PROVERBS.

MANY definitions of a proverb have been given; perhaps Lord John Russell's, "the wisdom of many and the wit of one," is the worst. Proverbs are not made by individuals; they are formed by attrition through many generations; they are "the people's wisdom," as a Russian saying puts it. Bacon said that "the genius, wit, and spirit of a nation are discovered in its proverbs," and the Scots declare that "as the people, so the proverbs." Proverbs are less often used than in the past, even by the peasants in whose speech they were once very common. Of those that survive perhaps the majority have to do with the weather and the times for sowing and reaping; but the authors of *Wayside Sayings* give few if any of this class; possibly they considered that the collection made by Inwards in his *Weather Lore* had covered the ground completely. Their ambition is to collect the proverbs peculiar to each nation, with the twofold object of illustrating its character, aspirations, traditions, and superstitions, and of encouraging the coming race "burdened with its material education and modern literature" to make more use of them. The first series, which was reviewed in our columns on July 22nd, 1922 (p. 130), contained seven hundred and fifty proverbs chosen out of fifty-four languages; the second, which has just been issued,[1] seventeen hundred and fifty chosen out of forty-three languages, including sixteen not represented in the first. Not only is the collection large, but the authors have chosen well. The best proverbs, always excluding those about the weather and the crops, have to do with fundamental facts, emotions, and experience, and therefore bear translation well, as these volumes prove. The authors, when seeking the right English equivalent, must often have had in mind Macbeth's words (ii, 3), "the labour we delight in physics pain," though, oddly enough, they put them among Dutch sayings. Many proverbs are about domestic affairs, and, judging from the way they handle wives, all of them must have been made by men. Many others are about sickness and how to avoid it; the doctor often fares no better than the wife, but the patient receives many a shrewd knock. "Fond of lawyer, little wealth; fond of doctor, little health," says the Spaniard, and the Scotsman advises "be long sick that you may be soon well." Point is given to the Russian proverb, "if a man knew where he would fall he would spread a carpet first," by the English sayings, "sickness cometh on horseback and goes away on foot," and "study sickness while you are well"; from these flows the polite injunction which occurs both in English and Hebrew, "honour a physician before thou hast need of him." The two sayings, "always take the fee when the tear's in the eye" (Scottish) and "the physician who accepts no fee is worth no fee" (Hebrew), are perhaps characteristic of the nations. There is wisdom in the Arabian "no man is a good physician who has never been sick," and the Chinese have a saying with a very modern ring, "when you shut out the sun from coming through the window, the doctor comes in at the door"; the same people wrap up a profound truth, which too many of us forget, in the injunction "if you have two loaves of bread, sell one and buy a lily." Mr. Wheatley may like to be reminded that "building is sweet impoverishing." But we must stop, for is there not an Egyptian proverb which asserts that "the fewer the words the better the letter"? And journalism began in letter writing.

[1] *Wayside Sayings.* By Selwyn Gurney Champion, M.D., and Ethel Mavrogordato. Second series. 1924. London: Duckworth and Co. (Cr. 8vo, pp. xvi + 284. 7s. 6d. net.)

A VOSGES SPA.

THE same correspondent who sent us a general account, published a fortnight ago (p. 245), of the Vosges country and its spas has supplemented the information he then gave by a special note on Bussang, which, owing to its elevation and the wooded hilly nature of the surrounding country, presents certain special characters which are likely to be attractive to English visitors. It lies nearly at the head of a pass in the Vosges mountains leading into Alsace. The village of the same name lies about a mile and a half further down. The elevation of the spa and its connected hotel is about 2,200 ft. It stands in a well wooded park, and most of the surrounding hills are covered by forests, the trees for the most part being pine, with an admixture of beech. From a motoring point of view the roads in the neighbourhood are good, and the Vosges Alpine Club has marked out a large number of mountain and forest expeditions of varying distances and difficulty. There is evidence that the springs were used for medicinal purposes in the seventeenth century, and they were officially recognized some fifty years ago; but it is only during the last twenty that there has been any considerable effort to use them on a large scale, and even as things are to-day the bathing arrangements are of quite a simple kind. The place seems to owe its reputation chiefly to the internal use of the waters, but largely also to its altitude and picturesque surroundings. Probably the majority of those who at present frequent it come from the larger towns in the north-east of France. Among them figure a good many children and young people, the subjects of more or less pronounced anaemia, while so-called weak hearts, neurasthenia, and simple lack of tone seem to be the principal troubles among the adults. For all these conditions the place may be considered very suitable; for children there is plenty of room to play about without troubling their seniors, and the latter can rest under the trees in the intervals between exploring the paths of various gradients interspersed among the thickets and woods. The general atmosphere is that of a country house, so possibly it should be regarded as a specially suitable place for those who, during their period of treatment, it is desired shall not be exposed to the temptations offered at so many spas in the way of dancing halls, gambling rooms, and theatrical performances. It is accessible from Paris with one change of train in about ten hours. The two springs chiefly used vary much in taste, but are practically identical in point of constitution except for the fact that one contains about twice as much iron carbonate as the other. The principal ingredients of the stronger of the two are, according to the

official analysis, in parts per million as follows when reduced to round figures: carbonates of sodium (628), potassium (61), lithium (6), calcium (380), magnesium (178), iron (8), manganese (3), with iron arsenate (1) and sodium sulphate (133). Free carbonic acid is present in the proportion of 179 parts per million. It is also stated on the authority of Laborde that the radio-activity of this spring is unusually high.

MALARIA AS AN EDUCATOR.

THE discourse on the historical aspects of malaria which Dr. Andrew Balfour, director of the London School of Hygiene and Tropical Medicine, gave last May at an evening meeting of the Royal Institution of Great Britain, as noted in our columns at the time, has been printed in full, and we may take occasion to call attention to the concluding passages, in which Dr. Balfour rather whimsically contended that malaria had had an indirect beneficial action by stimulating man to thought and action. From early days man began to show his ingenuity in protecting himself from fever. Egyptian and Cretan fishermen slept under fishing nets folded again and again until their meshes were small; they probably believed they were excluding miasmata. Any effect must in reality have been due to the exclusion of mosquitos, and men were inclined from early days to attribute the infection of fevers to mosquitos or other biting insects. Susruta, an Indian physician who flourished in the fifth century B.C., taught this, and Dr. Balfour mentioned the existence of a picture of him expounding this doctrine to an eastern potentate. Varro and Columella, at the beginning of the Christian era, associated mosquitos with insects bred in marshes, and Lancisi, in 1717, asserted that marshes were the cause of fever owing to the transformation of minute worms into "stridulous culices" which infused a poisoned liquid through the wounds they made. Dr. Balfour next traced the more recent history of the hypothesis that malaria was in some way connected with mosquitos, and mentioned Nott the American, Beauperthuy the famous French creole, and Finlay of Havana, of each of whom biographical accounts have been published at various times in our pages; he referred also to King, who, he said, was the soundest of them all. They were not listened to, and Richard Burton described the belief of the people of Zayla in Somaliland, that mosquito bites occasioned deadly fevers, as a superstition. Richard Pfeiffer, from a study of the coccidia of rabbits in 1889-90, was led to put forward the hypothesis that the malarial parasite, being incapable of producing a resistant form to withstand the dangers it would encounter in soil or water, went through an exogenous cycle of development in some blood-sucking insect, and in this he had the concurrence of Koch. "This," Dr. Balfour continued, "was, as events have shown, a prophetic utterance, but it was linked up with the earlier work of the great Sir Patrick Manson, who, long before, working in Amoy (China), far from books and skilled help, had proved that a mosquito served as the intermediate host of a human blood parasite, that tiny filarial worm, to the presence of which in the human body the disease elephantiasis is attributable. He showed that the mosquito was a necessary link for the fulfilment of the life-cycle of the blood worm." Neither Koch nor Pfeiffer followed up the matter, and "the solution of the problem was left to Ross, who, at Manson's instigation, took up the work in India, and after manifold trials and tribulations emerged victorious." The discovery was at once turned to practical account; thus, Dr. Balfour maintained, "malaria benefited man by stimulating him to undertake work for its own destruction." The American work on yellow fever was the sequel to these researches, and gave an immense fillip to the scientific study of tropical medicine and hygiene. "One of the latest developments," Dr. Balfour added, "has been the application of electricity to the destruction of mosquito larvae and pupae; Montellano of Argentina introduced the method of electrocution which is now being given an extensive trial." Not only did malaria excite inquiry and interest, but it led to the establishment of schemes for the instruction of the public. "Here it is," he continued, "that the Americans have forged ahead. Malaria is a very serious problem throughout the Southern United States, and indeed has been the reason why some of them have until lately been backward and depressed. The Americans are a practical people, and moreover are easily fired by that idealism which, if well regulated, so often spells success. Hence they have spared neither time nor money in combating malaria." The truth of this assertion was demonstrated by the exhibition of a cinematograph film prepared by the Rockefeller Foundation.

WOODEN HOUSES.

AMONG those who are giving serious consideration to the housing problem among the working classes there are many who hold the opinion that the solution is to be found in the production of cheaper buildings rather than by the uneconomical method of subsidizing existing and, as some maintain, antiquated methods of construction. It is urged that to continue the practice of our forefathers in joining together with studied deliberation 40,000 to 50,000 separate bricks or pieces of timber can no more be justified than would the continuance of the practice of putting out conflagrations by buckets of water to the exclusion of the steam fire engine. The view that cheaper and quicker methods of construction than those which have held the field for thousands of years should be searched for found expression in the recent debates on the housing bills in the House of Commons, and it was very definitely stated that these methods had actually been found and could be put into operation. An increasing number of persons advocate the utilization of wood in house construction, and emphasize their contention by a reference to the use of this material in the colonies and elsewhere. In the JOURNAL of July 12th (p. 70) attention was drawn to a report of Dr. R. Wright, medical officer of health for Trowbridge in Wiltshire, in which he urged the district council to erect a block of wooden huts in which to house the large number of persons who at present are living in houses totally unfit to be inhabited. This proposal has been criticized by several of our readers, and the medical officer of health for Ebbw Vale (Dr. F. M. Fonseca) in his report for 1923 reported adversely on temporary hutment dwellings in use in his district. Very few of the huts, he said, were satisfactory. Almost every tenant complained of the damp and draught. The ceilings were leaking, and rain came down along the chimney stacks. He recommended that the council should take the first available opportunity to discard the huts in favour of permanent houses, by which we understand buildings of brick or stone. When commenting on Dr. Wright's report we observed that there were at the present time many more people living in wooden houses in this country than was usually realized, but added that whether such dwellings were suited to English habits was a question on which opinions differed. We might have added that the English climate—at any rate on the western side of the island—creates difficulties which do not exist, for instance, in Canada, where wooden houses are very common in rural districts. A wet climate, such as that of western Wales, is a severe test of the skill of the builder of wooden houses. The rainfall at Holyhead, the nearest station to Ebbw Vale, given in *The Book of Normals*, issued by the Meteoro-

logical Office, is 888 millimetres (34 inches) and the number of days with rain 201. At Greenwich the annual rainfall was 596 millimetres (23½ inches), and the number of days with rain 163.

SIR WILLIAM MACEWEN'S EARLY DAYS.

GLASGOW has recently suffered very severely by the loss of its leading surgeons, and British surgery was left without its greatest ornament when, on March 22nd last, Sir William Macewen passed beyond these voices. At the time a full notice of the life and work of the Regius Professor of Surgery was published in our columns, and sympathetic accounts appeared also in the *Glasgow Herald* and the *Glasgow Medical Journal* (April) written with much personal knowledge by, it is believed, Dr. Freeland Fergus and by Mr. J. H. Pringle respectively. These would serve as a basis for any life that may be written of this outstanding personality, but as throwing further light on Sir William Macewen's early days at the Collegiate School, Garnet Hill, and the University of Glasgow, attention may be directed to Dr. J. W. Allan's reminiscences of his famous brother-in-law in the *Buteman and West Coast Chronicle* of August 8th. Lady Macewen is a sister of Dr. J. W. Allan, affectionately remembered as the superintendent of the Belvidere Fever Hospital. Her husband, when 15 years old, is described as a big ingenuous Rothesay boy, full of animal spirits, bright and intelligent, but indifferent to book learning, and more at home in the gymnasium than in the class-room, being a master at singlestick, as the black and blue bruises on the arms and legs of his opponents testified. His boyish carelessness vanished when he entered the university in 1863, and the two friends spent much time in the quiet Hunterian Museum, which they had practically to themselves. Macewen, like John Hunter, early began to think and observe for himself, and he soon came under the inspiring influence of Lister, who was then beginning his epoch-making work. The two friends then became house-physician and house-surgeon at the old Royal Infirmary; Macewen in the latter post served under Sir George Macleod, and showed his inventive ability by employing a method for keeping the lips of the flaps of an amputation wound together without sutures. Later he was house-physician, but surgery had now become the pleasure and the passion of his life; his mental attitude was that of an independent seeker after truth; he took nothing for granted—current opinions and accepted views had no weight with him until tested by experiment or experience—and he was ever able to find opportunities for original observations and good surgical work in what would appear unpromising circumstances, such as the wards of the poor-house or the accident department of a police office.

BRITISH ASSOCIATION MEETING IN TORONTO.

IN connexion with the concluding sessions of the British Association meeting a special convocation of the University of Toronto was held on August 13th, when the honorary degree of Doctor of Science was conferred upon the President, Sir David Bruce; the past-president, Sir Charles Parsons; the president of the Agricultural Section, Sir Edward Russell; and on Sir Ernest Rutherford, professor of experimental physics and director of the Cavendish Laboratory at Cambridge. One of the closing papers read echoed the note on preventive medicine sounded by Sir David Bruce in his presidential speech at the commencement of the meeting of the association. Mr. F. A. Dallyn, addressing the Engineering Section on the subject of the engineer and public health, suggested that a great part of the work of specific sanitation came more particularly into the province of the engineer, and could be advantageously left to him in co-operation with the biologist. The medical personnel would thus be free to work in its own special fields of hygiene and nutrition, leaving to engineers such problems as the provision and supervision of public water supplies, the protection of streams, and the collection and disposal of garbage. He also expressed the more questionable opinion that the biologist and the engineer, working together, could deal with the control of flies and mosquitos, the extermination of rats and mice, and delousing stations. At the final session of the Psychological Section, Professor C. Ladd-Franklin considered the various theories of colour vision, and Dr. J. Drever discussed critically the conceptions of the "conscious" and the "unconscious" in psychology. Dr. Alexander Low contributed to the Anthropological Section a preliminary study of the results of the anthropometric examination of infants with a view to discovering how far sex, growth, and environment influenced physical characters. The meeting of the British Association this year has been perhaps more noteworthy for the practical value of the subjects considered than for the announcement of any outstanding scientific discoveries. This was especially evident in Sir David Bruce's presidential address on preventive medicine and Dr. H. H. Dale's paper on chemotherapy, which appeared in our issue of August 9th (pp. 239 and 219 respectively). The survey of the work of the sections in last week's issue (p. 291) illustrated the same practical application of scientific research in the fields of anthropology, psychology, physiology, and chemistry to the advancement of individual and national efficiency, which has caused the association's meeting in Toronto this year to be of interest and importance to the medical profession.

THE N.F.A.

THE "Not Forgotten" Association exists to give assistance over and above that afforded by the Ministry of Pensions to men wholly or severely disabled by wounds received in the war. This assistance is given mainly by way of personal service and the provision of small luxuries and distractions, but the association also possesses a home hospital at Clapham Park, where some thirty men suffering from severe forms of spinal disability are looked after and encouraged to do leather work and make baskets and other small things for which a good market has been found. Particular interest in the work has been shown by the King and Queen, Princess Mary, and other members of the Royal Family, who invite the men to garden parties at Buckingham Palace and entertain them in the riding school there at Christmas. The association is, of course, in want of funds, and asks for contributions to be sent to its honorary treasurer at the organizing offices, 86, Ladbroke Road, Holland Park, W.11. These particulars are taken from a preface written by Sir Sidney Low for a volume which has been issued in the expectation, which we hope may be fulfilled, of adding to the funds of the N.F.A. The reason for this hope is that the volume, which has been compiled by F. de Burgh and Walter Stoneman, is in itself attractive. It contains over a score of articles contributed by some of the best known occasional writers of the day. Many of these articles are of great intrinsic value, but the interest of the volume will be increased to many by a series of twenty-one camera portraits of the contributors; among them are Mr. Chesterton, Mr. Maxwell, Mr. John Galsworthy, Mr. John Buchan, Sir Arthur Conan Doyle, Mr. Pett Ridge, Mr. Arnold Bennett, Sir Owen Seaman (the editor of *Punch*), and Sir Sidney Low himself. The volume is published by Messrs. Sampson Low, Marston and Co., Ltd., and its price is 7s. 6d. Its title is, very appropriately, *Rosemary*.

A MEDICAL REVIEW OF SOVIET RUSSIA.

II.—HOSPITALS AND HEALTH CONDITIONS.

BY

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IN a previous paper* it was stated that the present economic conditions in Russia, due more or less to the external and internal wars in that country, were the chief causes of the epidemics of disease there. It is now my purpose to describe in more detail those conditions that gave rise to such widespread disease, and to discuss the role of the hospitals in this period.

At the expense of repetition we must make some mention of recent events in Russia in order to understand the present morbid conditions. Even the extreme optimists cannot deny the effect of war and famine in producing disease. Whatever predictions may be made for the future of Russia, we must admit that the present health of its people is worse than formerly, and that the late conditions there cast a fearful shadow over the future health of Russia, in spite of all that the Soviet Department of Public Health and relief organizations have done.

The disorder of war and revolution in an already disordered country like Russia was sufficient in itself to produce wholesale disease, but when three years of extensive famine were added to these factors it is small wonder that there should have resulted epidemics of a magnitude unrivalled in modern history.

GENERAL HEALTH CONDITIONS.

Although 80 per cent. of the Russians have probably always been undernourished to the same degree as or even worse than the poor of other countries, as they existed chiefly on black bread, and though the food shortage had become progressively worse since 1916, there was not starvation until the drought and famine years.† The year 1920 was probably the worst; then millions were starving and nearly all the population was seriously undernourished. Dogs, cats, horses, camels, and even rats were eaten in 1920, 1921, and the winter of 1922. In some places cannibalism existed then; quite frequently dogs and men could be seen in the streets of Leningrad fighting over the carcass of a horse. On many occasions I have seen people eating roots, wild berries, the bark and leaves of trees, and "bread" made of dirt, grass, and dung. As late as July, 1922, I saw personally two cases of cannibalism, and in September of that year, in a village of South-eastern Russia, in twenty out of twenty-five huts I inspected at random there was one or more persons actually dying of starvation, too weak to get up. The year 1923 was much better in regard to food.

Several other factors accelerated the spread of disease—namely, the lack of clothing,‡ dirt, overcrowding, and the refugee movement.

Most people in Russia have had no new clothing for seven or eight years, and have had to sell part of what they had for food. Owing to the lack of soap and hot water, bathing as a cleansing process was nearly altogether discontinued even by people who were normally neat. Most of the public baths had to be closed for lack of fuel and repairs, so that in 1919 they operated only one-seventh as many days as formerly, and (according to Dr. Shamoff) "bathing was never popular in Russia."

Overcrowding is still a serious problem. The destruction of houses by civil war or for fuel, and the lack of plumbing for many years, makes the housing situation acute. Very few houses have been erected since 1916. It is common to see a whole family living in one or two rooms. Even to-day in a city like Leningrad, where there has been little fighting and consequent destruction, and where the population is less than one-half of the pre-war census, it is extremely difficult to find rooms; many of the houses are crumbling, and nearly all are out of repair.

Refugees from Famine Districts.

A most pathetic picture was that of the Russian refugees. From 1919 through 1922 millions of them were wandering over Russia searching for food. Railroad stations and other accessible buildings were filled with these wretched creatures carrying an indescribable accumulation of rags and filth. One-tenth of Russia had turned gipsy. These forlorn wanderers went hopelessly from town to town in a vain attempt to find food, carrying their worldly goods in a bundle of rags, and often leading their ghastly children by the hand till they dropped dead from exhaustion. They almost swamped the trains, overcrowding the coaches, and riding wherever they could find a hold on the outside—all over the locomotive, between and on top of the carriages, and even swinging on beneath them—going they knew not where to escape the famine. They covered the country, and wherever they stopped they lived and died like locusts. I have seen the waiting-rooms of stations so cluttered with them that one could not force a passage through. There they lived, slept, had babies, and often died of typhus or starvation. Their mortality was very high. On a transport train from Saratov to Uralsk (450 miles) in April, 1922, forty out of ninety died *en route*.§ They were infested with lice and were veritable hotbeds of disease; they spread typhus, malaria, small-pox, and cholera from one end of Russia to the other. In 1923 the Soviet Government was faced with the immense task of returning these refugees to their homes.

The death rate rose from the Russian normal of 25 to 85; nearly every morning dead bodies were seen along the street and piled high in heaps to be carted away. It was during this period that men were forced back upon the primitive forces of nature, and it was said then that "civilized life in Russia is literally crumbling to pieces" (Dr. L. Haden Guest).

Epidemics.

Under these conditions the great epidemics which had begun during the war, and had always been endemic in Russia, reached their maximum. It was impossible to keep accurate figures, but conservative estimates by Russians put the morbidity from typhus alone at 20 to 30 million, with a mortality of 3 million (Professor L. A. Tarrasevitch). About one-third as many suffered from recurrent fever. In 1921 there were recorded officially 205,553 cases of cholera, 308,548 of typhoid, and 83,016 of small-pox. Authorities put the total number of deaths from epidemics since 1916 at 8 to 10 million.

Through the combined efforts of the Soviet Government, the native medical profession, and the various foreign relief agencies these epidemics have been brought under control, but tuberculosis, and especially syphilis and malaria, are widespread now. Some diseases have decreased—for instance, diabetes mellitus and some metabolic diseases like gout and cholelithiasis; alcoholism and its sequelae have become rare under State prohibition. Those who have not succumbed to the famine and who have escaped the contagious diseases have had so many demands upon their strength, and have been in the midst of so much poverty and misery, that even if they have avoided physical disease their nerves have often been shattered.

To sum up the situation, we can say that, judged by Western standards, about one-half of the population of Russia would to-day require hospital treatment. This estimate is borne out by a medical examination concluded in March, 1924, of 1,833 students from twenty-nine different colleges in Kiev—students eating in the student relief kitchens of the World's Christian Student Federation. The

* Medical Education in Soviet Russia, BRITISH MEDICAL JOURNAL, June 14th, 1924 (p. 1055).

† Famines have been frequent in Russia, and in the eighteenth century a famine similar to the recent one occurred, when pies made of human meat were said to have been sold on the market and other acts of cannibalism were described. Periodic droughts in the grain-producing regions, and the lack of adequate agricultural methods and of methods of harvesting, storing, and distributing foodstuffs, have been the chief factors in causing the famines. The famine just past came at a time when the world war and the revolution had left Russia prostrate. As late as 1907 there was a limited famine in Russia.

‡ There is still a great shortage of clothing—for example, "the day after the parade for the funeral of Lenin, twelve students presented themselves at the student dispensary of the European Relief alone for frozen ears and feet from a lack of proper clothing."

§ Reported by one of my associates, Mr. P. S. Clapp, who went with this train.

examination included 127 women. Of the total number, 15 per cent. were in good health, 40 per cent. were tuberculous, 22 per cent. had some form of cardiac disease, and 23 per cent. had other diseases. (Report received personally from Mr. Conrad Hoffmann, Executive Secretary, European Student Relief.)

This, briefly, has been the health of the Russian people. What aid were they able to receive from the medical profession and from the hospitals?

The Medical Round.

The medical profession suffered not only from those conditions which affected the general population, but from conditions peculiar to itself. The circumstances of professional work were extremely distressing. Many had been mobilized (under Communism) and sent to new places, to work in other specialties than those to which they were accustomed. Men of renown were to be seen frequently in some small out-of-the-way town, occupying a position of minor importance as dispensary physician. Their responsibilities were enormously increased. Themselves without warm clothing and in a state of chronic starvation, they had to care for ten patients where before they had one. They were thrown into more intimate contact with contagious diseases without the usual methods of disinfecting (soap, hot water, chemicals), and one-fifth of the medical profession succumbed to typhus alone. But both Communist and non-Communist doctors responded nobly to the calls made upon them.

The following is a description of the life of a physician during the worst period of the epidemics, as given by Dr. Grekoff, chief surgeon of the Obookoff Hospital, Leningrad:

> "From the early morning he is on foot, awaiting his turn in various jobs for hours, or running about the town in search of people with provisions, fuel, or lamp oil to sell. On returning home he has to put in order his lodging, often the street; to saw, to split, to carry wood (if there is any); then to bring water from the first floor or the yard (if the pipes have burst); to peel potatoes, scale herring, grind the grain, to boil soup or gruel, to wash cups and plates; to look for a needle and thread, to mend and wash the linen, often in icy water, to procure a lamp and some petroleum for it; then to go to the meeting of the House Committee, etc.; in the intervals of these important affairs he has to go to his office if he is of service, and if a physician to visit the hospital; to visit several patients, always going on foot. He may then consecrate his other time in preparing his lecture and scientific work (wrapped in overcoat and gloves), then go to bed muffling himself in the rags and clothes in his possession, perhaps to be aroused for two or more hours during the night by patients waiting at the gate. One could presume that I am caricaturing, but that is almost an exact reproduction of a winter day's routine (in 1920)."

Let us now review the hospital situation in Russia in pre-war times, in the period of the epidemics, and in the present. General conditions were always extremely insanitary in Russia, and the old Government gave little encouragement to the advancement of public health. There were normally about 10,000 hospitals and 270,000 beds, under the charge of 17,000 doctors and 35,000 assistants. These were not enough to cope with the diseases even under normal Russian conditions.

Hospitals.

There was as wide a variation in the hospitals of Russia as there was in the classes of society. In Leningrad, and to a lesser extent in Moscow, Kiev, and Odessa, there were some excellent hospitals. The Pasteur Hospital for Children (400 beds), the Orthopaedic Hospital (150 beds), and the Leningrad Obstetrical Hospital (200 beds) are hardly surpassed anywhere either in type of construction or equipment. But in towns where there were no medical schools the hospitals were antiquated and insufficient in beds, equipment, and personnel. They were frequently one-story log buildings without any plumbing or sewage. Felchers (persons not qualified to practise as doctors, but with some practical experience in dispensing drugs and caring for the sick) often had charge of the ambulatories (dispensaries), and were frequently the only medical men in villages of two to five thousand. But though there was a scarcity of doctors, the average Russian physician I met was better educated and better informed on medical and scientific subjects than the average American doctor.

The equipment of the hospitals was good in the larger cities and rather poor in the smaller towns. The methods used were principally those of the German hospitals, and the medicines and apparatus were, like most manufactured goods in Russia, of German origin. These hospitals, which were barely able to care for the normal needs of Russia, were faced after 1918 with overwhelming epidemics at a time when general conditions were *in extremis*, their staffs sadly incapacitated, and their equipment depleted. In these circumstances they became morgues rather than hospitals.

During the period of epidemics, which coincided with the period of "nationalization" of buildings, the Soviet Government gave additional space for hospitals in some of the best buildings that it had taken over. There was also during this period a concentration of the population into groups—for example, children's homes, industrial workers' homes, etc.—and most of these had several rooms which were converted into provisional hospitals. In this way the number of beds for the sick was greatly increased, but as there was no equipment and very little medicine for these places they had none of the essential attributes of a hospital, and served mainly to separate the sickest from the least sick. In the real hospitals (and also outside the hospitals) there was a shortage of beds. Many of the iron ones were too old to use, and most of the wooden ones had been broken up for fuel. Mattresses and linen had been worn out. I have frequently seen two adults or four or five children in a single hospital bed. From 1920 to 1922, owing to the shortage of fuel and want of repairs, over a hundred hospitals in Leningrad alone were closed.

During these years there was only one-fifth of the normal amount of fuel in Russia. The patients suffered from the cold, and the frost caused the water pipes to burst and the walls to crumble. This was the condition in nearly all of the hospitals. Many of the hospitals are even now unable to use their plumbing systems, hot water being carried by hand in the operating rooms in some of the best hospitals in Russia. The great crevices and rents in the hospital walls bear grim testimony to the cold they have endured.

Owing partly to the lack of fuel and partly to the Russian aversion to fresh air, all the windows of Russia, hospitals included, have in recent years been nailed and tightly sealed from October to June, and as the Russian house is built with double walls, windows, and doors, it is almost airtight except for the icy blasts that leak in when one enters and leaves the building. This lack of fresh air gives the hospitals as well as other Russian buildings a characteristic and indescribable stench which wellnigh floors one when entering for the first time.

Dieting.

The food situation in the hospitals was but a little better than it was outside. During the period of Communism all patients were furnished free with what the State could afford (from 1/4 lb. to 1 lb. of black bread, thin gruel or dried fish soup, perhaps some potatoes). The calories were about one-third of the daily need, and the quality was far from fit even for the healthy. (I remember being nauseated by tasting one large spoonful of this soup.) After the "N.E.P."* the patients brought their own rations, if they had any, to the hospital. The shortage of food made it possible to do only emergency operations; very few patients were strong enough to be good risks for even simple operations, and then there was no proper post-operative nourishment.

In 1923 the calories were increased to about 1,800 and meat was added, and the quality, although far from adequate, is much better, and suffices for many cases. In 1922 and until August, 1923, the American Relief Administration was issuing rations of rice, cocoa, white bread, and sugar, totalling about 1,000 calories, to roughly one-fourth of the hospital beds in Russia—for example, in Moscow and Leningrad, each 10,000 hospital rations; in Saratov, a city of 250,000, 17,000 rations. These meals were frequently all that the patients got; sometimes they were supplemented by another meal by the Soviet Government.

Equipment.

The equipment of the hospitals has been steadily declining since 1914. The blockade of Russian ports made the shipment of all medical supplies impossible except

* New Economic Policy, instituted 1921.

through relief agencies, and later economic conditions prevented their import. They have thus received nothing new for ten years, except that little that was brought in by relief organizations and a very little more that the Soviet Government was able to add. Even that part of the apparatus that has not been worn out has usually become useless because of the lack of some little part that cannot be replaced—for example, *x*-ray machines are generally out of use because the tubes have been exhausted and there are no plates.

Nearly all important medicines are lacking—in particular salvarsan, quinine, opium, anaesthetics, and disinfectants. Moss was used in place of cotton-wool for pads; the shortage of gauze prevented all but the most urgent operations; rubber gloves were never used even in major operations. Most surgical instruments have been literally worn out; clamps, scissors, and scalpels were always in a disreputable condition. In many hospitals it was impossible to do a bloody operation like a hysterectomy because there were not enough good haemostatic clamps; for the same reason two operations could not be performed at the same time, even when the staff was sufficiently large. Lack of catgut was almost universal; ordinary string was often used. In one of the hospitals in Vologda one of the chief doctors I knew gave the strings of his violin—his sole form of recreation—for an operation requiring catgut. One clinical thermometer had often to suffice for 200 patients; a hospital of the Volga region that I recall had no thermometers for its 205 patients except one which a patient had brought in with him.

Dr. Grekoff, one of the chief surgeons of Leningrad, says of the hospitals of that city, which were by far the best in Russia:

"A physician who had worked here in 1913, visiting the same place in 1917 or even in 1915 would hardly have recognized it, so changed were the surroundings and the patients. The corridors were dirty, the floors falling in, the ceilings and walls damp, black, and mouldy; the air saturated so with the exhalations of patients and the odours of purulent wounds and gangrene of the lungs that he would soon be short of breath. The patients were extremely emaciated or oedematous and very pale or yellow, and in throes of agony; amid them nurses and physicians stalked like ghosts, having lost their faith in surgical therapy, noting everywhere that their former powerful ally, *vis medicatrix naturae*, had ceased to assist them. He would also have noticed that some forms of disease generally rare had become frequent, and that on the contrary many common diseases had almost disappeared, and that the course of ordinary disease had become so changed that a surgeon of the old school would have to learn anew and to change radically the routine treatment and indications for operations."

Owing to the impoverishment of the hospitals patients were frequently better off in private dwellings. In some institutions beds were without any cover or mattresses, and the patient had to sleep on boards, and in a few instances I have seen totally naked patients. For lack of soap and hot water, patients could not be bathed. They came in infected with lice and remained so during their stay in the hospital; they often slept in their own clothes without ever undressing.

Condition of Patients.

The resistance of the patients was greatly lowered. Those who did not succumb at once showed all kinds of complications—such as severe local infections from slight scratches, suppurations, extensive necroses, gangrenes, and particularly peptic ulcers from the irritant quality of the food. Amputations for gangrene increased in the Obookoff Hospital (1,500 beds) from 2½ per cent. of all operations in 1913 to 5 per cent. in 1918 and 12 per cent. in 1919. Hernias were present in 0.5 per cent. of the patients in 1913, 1 per cent. in 1918, and in 1919 in 2 per cent., the increase being due to emaciation and weakness of the muscles. The mortality of surgical diseases increased from 3.8 per cent. in 1913 to 7.9 per cent. in 1917, 11.1 per cent. in 1918, and 13 per cent. in 1919 (Maniloff).

Professor Waldman has the following to say about the lowering of resistance and the death rate of the patients:

"In 1918 the death rate in the Obookoff Hospital in 1,692 cases of 'famine disease' was 31.3 per cent.; in 1919 the rate rose to 43.1 per cent., and in 1920 to 50 per cent. In 68.5 per cent. of these death occurred during the first two days, as about one-half of them were dying when brought in. Prolonged underfeeding had lowered the power of resistance, and though the people did their daily tasks, and their organism seemed to keep its equilibrium, there was an absence of reserve. The organism suddenly refused to function on the slightest tension. Most of the patients who died from hunger were brought to the hospital from the street. In such cases autopsy showed *inanitio maxima* and nothing more. This case is characteristic: G., aged 42, came home late one night at 1 o'clock, and could not get into his flat, for no one answered his bell. At 5 in the morning he was found on the staircase in an unconscious state, and died immediately after he was brought into the hospital. This occurrence, so insignificant in itself, was sufficient to kill a man who did not consider himself ill. Another case: P. went to the country and brought back 30 lb. of potatoes, and on arriving home drank a glass of tea, fell down unconscious, and was dead half an hour later, though he had not been previously sick."

Those conditions which have been described for the famine years have not yet entirely disappeared. In 1923 the food was so insufficient that cases of scurvy frequently developed in the hospitals. There was then no food suitable for the pre-operative and post-operative care of patients, which lack was most severely felt in the treatment of gastric ulcers, one of the most frequent of the new diseases. The lack of ventilation and heating makes the air cold and damp, and forces the patient and staff to wrap themselves in all the warm things they possess, which does not contribute to the cleanliness of the wards.

"The irregularity of the laundry and the disinfecting chamber due to the lack of fuel are the reasons why the hospitals could not get rid of lice; they were often found on the clean linen just as it was brought from the laundry."

In June, 1923, Dr. Shamoff of the Military Medical Academy wrote:

"The custom of bathing the patients has fallen into disuse in most of the hospitals. Even before the operation the patients have no bath because of the scarcity of hot water and the dread of their catching cold. At some periods there was not enough soap and hot water to wash even the field of operation, and then the patients got hot water for their tea only once in twenty-four hours. The conditions of the hospitals are especially hard in the winters and they have continued to be so through the winter of 1922-23."

Operations.

Of the operating room Dr. Shamoff says:

"In most of the hospitals the operating room had not been repaired since the beginning of the European war. At the time of the fuel crisis nearly all heating was discontinued in them as well as in the other parts of the hospitals. The immense windows, even though double, were covered with ice stalactites, which, when thawing, overflowed the operating room; the wet putty and the stucco of the walls cracked and fell off by bits. During the winter of 1918-19, when the population had not yet adapted itself to the struggle with the cold, the temperature in the operating room often went to 8° or 6° below zero (Réaumur), and under such conditions only the most urgent operations could be risked. The operator's fingers, numbed by the cold, could not bend with sufficient agility, and operations on this account were performed with great risk. Beginning with the winter of 1920 small iron stoves with long pipes running all around the walls were placed in the operating rooms as well as in most of the other houses in Russia, to take the place of the larger Russian furnaces which required a great deal of wood. Owing to the lack of fuel and linen, surgeons were forced to minimize the protection of the operative field, and had to use one gown for several operations, or a sterilized sheet instead of a gown.

"The stock of surgical instruments, which had not been renewed since 1914, got so overworn that many could no longer be used. One often had to work for many months in the operating room with one curved needle and one pair of forceps. There was also a lack of gloves, silk sutures, and surgical dressings. The hands of the surgeons were all covered with crevices and cracks, due to the chopping of wood and the preparing of food they had to do at home; and nearly all of them suffered with chronic chilblains, from having washed their hands in icy water. Silk sutures were replaced by common thread, and even this was difficult to get. In order to economize surgical dressings they were washed over and over again, but this could not be done systematically owing to the irregularity of the laundries. We were often forced to wash the dressings in a very primitive way in the operating room and hang them up there for the night to dry."

In spite of all these things the surgical work did not stop; on the other hand, the conditions forced an increase in the number of operations. For instance, the impossibility of curing gastric ulcers by diet, and the necessity of patients having to return to their work soon, made operation the only method of relieving them. In orthopaedic cases the lack of the means of elementary hygiene, the impossibility of plaster-of-Paris, of corsets, and other orthopaedic appliances made operation the only choice. I saw any number of Albee fixations of the vertebral column, as this was the only way of getting these patients on their feet again in a short time so that they could continue their

struggle for life. In regard to the election of an operation, Dr. Grekoff says:

"We always risk seeing the patient die on the table. If he recovers from the operation, the wound may not heal at all, or its healing is very precarious; in any case it requires an endless amount of time."

In some cases the patients apparently got over their operation but dropped dead without any forebodings on the slightest exertion when they got up out-of bed; particularly frequent was this in emaciated patients. Dr. Grekoff says that patients with hunger oedema stood operations better than might be expected, but their wounds healed very slowly and they were prone to infection owing to the presence of the large amount of water in their tissues. Although amputations became much more frequent because they had to be done to save the patient's life, certain operations like those for hernia and appendicitis became less frequent.

Hospitals in Smaller Towns.

To give an idea of the hospitals in some of the smaller towns I shall describe them as I saw them a year ago on two of my inspection trips, one in the north and the other in the south-eastern part of Russia.

Uralsk, near the Caspian Sea, was in the centre of the famine region, and its population has been reduced from 60,000 in 1914 to 30,000 in 1923. Formerly it was an important milling town. When I saw it most of the houses had been destroyed by the fighting between the Whites and the Reds. Once a week a passenger train ran to Saratov on the Volga. During a visit of three days I saw three automobiles in the city. The drinking water was obtained from local wells. Sewage was emptied into underground cisterns and left there for one to four weeks before it was carted away in barrels. This system of disposing of refuse material was not new in Russia, and the only difference between the past and the present is that now there are fewer camels and horses to haul the sewage away as most of these beasts of burden have died or been eaten during the famine. As in most other places, there is a shortage of doctors; only twenty-two are registered in the city, and in the surrounding country there are practically none; in the fifteen villages through which I passed there was not one doctor. Sixty per cent. of the population was estimated to have malaria, and over half of the hospital beds were filled with these cases. During a thorough inspection of all the hospitals I saw only one microscope. Although there were no glass slides and no blood stains, the young intern in this hospital was perseveringly examining blood smears on pieces of glass he had saved from a broken window-pane.

The following account of a hospital in Alexandropol is typical of these institutions during the worst period:

"Some 300 children had been gathered into two buildings which had been dignified by the name of 'hospital.' These buildings were in fair condition, inasmuch as the windows, roof, and floors were complete, but it would be difficult to conceive more abject filth or revolting conditions than those that obtained in the wards. Each bed consisted of an iron frame partially covered by two planks. Some of the children were clothed in little undershirts and drawers; some of them were entirely nude. From one to four patients were in each bed. There was a bathroom in each building, but the doors were locked and the keys lost. Every window in both buildings was either locked or nailed. A filthy attendant in each ward part of the time slept in the corner while the children starved for the food she was stealing. There were tin bed-pans in some of the wards, but they were never used as it was easier for the children to soil the mattress, which was seldom changed. There was a small toilet in each building, but the floors were so frightfully soiled with excretory matter that the ambulatory children used the ground as their toilet, so that at first it was almost impossible to walk through the yard. The superintendent spent his time in fighting with the physician-in-chief, and in stealing for his personal use the food intended for the children. There was practically nothing in the way of medical supplies, and little was needed, since food and hygiene were the real medicines required. The children were dying at the rate of seven a day, chiefly of starvation." (Report by Dr. G. L. Richards, of the Near East Relief.)

Cherepovetz is the seat of government of a gubernia (state) bordering on Archangel, with a million population. The town itself has grown from 10,000 to 22,000 in the past few years, many refugees having come up since the famine, as it was outside the famine region; improvement of waterways along the head-waters of the Volga accounted also for part of the increase. There were at that time 1,200 registered as unemployed. Although the housing conditions were better than in the south of Russia, because there was no fighting and destruction around Cherepovetz, I saw several cases where five were living in a single room. Water from the river was run into three fountains, where it was sold by the bucket, but owing to its cost most of the inhabitants used local wells.

In the children's homes that I inspected the children had no shoes or stockings and their clothes consisted of a one-piece suit that had been improvised from old sacks. Nearly all of them had scabies, and sores all over their faces. The hospitals were kept exceedingly clean. In all six hospitals (500 beds) I saw only three blankets; in most cases there were also no sheets, and the patients had only some light cover or an old garment thrown over them, and, of course, the windows had to be kept closed. The surgical hospital had only fifteen haemostatic clamps, and these were almost too old to use. There were no stretchers, and I saw patients with fractures being carried in the arms. Except for one microscope, which had been borrowed from a nearby town, there was none in the city, and I was told that a routine urine analysis had never been done in the city. Tongue depressors had been whittled out of wood at the hospital; there was not a rubber glove anywhere. Convalescents could not walk because they had no proper clothes or slippers.

A special hospital for venereal cases had been in use for two years. The head of the public health department told me that, besides the epidemic diseases, 75 per cent. of the population had tuberculosis and probably 45 per cent. active syphilis; 6 per cent. of the population had appeared in the hospitals for treatment for that disease. I saw many cases where several members of the same family were infected, not by sexual means, but by ordinary contact, owing to the lack of soap and the usual means of keeping clean. The facilities for treating the syphilitics were reduced to almost nothing except symptomatic treatment, as there was very little mercury and no arsenicals.

The health department had just received from the central Soviet department in Moscow 100,000 doses of small-pox vaccine, but 50,000 more were needed.

Children's Homes and Hospitals.

Many children had been sent up to towns in the north of Russia from the famine regions in the south, and most of these had been returned; but a few had remained behind because they had no place to go. Some of these had wandered out of the children's homes that were provided for them and were to be seen on the streets as beggars or thieves. The chief doctor at one of the hospitals told me that many of them came into the dispensaries not really sick but exhausted from emaciation and malnutrition. Although famine had never been present in this district and there were no deaths from actual starvation, there had been a diminished supply of food, and part of this had to be used for refugees; the morbidity and mortality rates had both risen sharply.

Russia is a land of contrasts, and it was like coming into an oasis in the desert to enter some hospitals, which in order, discipline, and cleanliness would have excelled or rivalled any American hospital. Some of these were almost models in spite of the lack of equipment, and one could not but admire the ingenuity and pluck of those Russians who worked to make them so.

Efforts to Help.

This sketch of the Russian hospitals can convey at best but a hazy impression of what has really happened within their walls in the past decade; the conditions have beggared description. Probably no institutions in Soviet Russia have suffered more than they and at the same time had greater duties to perform. Although they have been able to receive not a tenth of their pre-war allocations, they have had more than ten times as much to do. Their equipment has been reduced to almost nothing—most of the necessary medicines have been lacking, and the personnel has been starving, sick, and trebly decimated by famine, epidemics, and war.

As an example of the amounts the hospitals have received, the records of the four largest in Leningrad may be taken;

they show that 75 to 100 per cent. of the most important medicines and surgical supplies received in 1922 were donations from the American Relief Administration. The British Mission, besides giving large amounts through the Red Cross, supported, under the direction of Sir Herbert Waterhouse and others, a hospital in Leningrad for three years, and the German Red Cross still has a hospital there, although its activities have been greatly reduced in the past year.

An enormous amount of relief work was done in Russia by the Swedish, German, French, and Dutch Red Cross Societies, the British Save the Children Fund, and the American Relief Administration. Both the British and the American organizations sent not only medicines but food and clothing into Russia.

Most of these relief expeditions have been withdrawn. The European Student Relief,* however, which is supported mainly by British and American funds (although other countries, notably New Zealand, Australia, Holland, and South Africa, have also provided considerable funds), is doing a limited relief of an excellent nature, principally in the universities, among both students and professors. Food and clothing are distributed to the most needy, and student dispensaries have been rendering a valuable service in most of the important universities of Russia. It is, however, becoming increasingly difficult to obtain relief funds for Russia, and the European Student Relief, which is doing the most extensive medical relief at present among the universities and intelligentsia, will probably have to withdraw for lack of funds, leaving no medical relief of any consequence in Russia.†

Present and Future.

How do the hospitals differ to-day from the conditions just described? Briefly, they have more food and linen and they are more orderly and cleanly. Instead of epidemics they have the sequelae to contend with. They are just as badly off as or worse than they were in equipment and number of personnel.

But there has even been some reconstruction going on recently, not in new buildings or equipment, but in the plans and thought for the future. "Necessity is the mother of invention," and many new ways of doing things have been introduced into the hospitals which have made for a more efficient use of the material in hand. There has been a concentration of equipment and resources by closing many of the hospitals which were in the worst condition. Many new institutions are being started for the syphilitic and tuberculous; units have been organized for the study and eradication of malaria; summer resorts have been opened around the larger cities and in the Crimea for some of those in need of rest; societies for educating the peasant how to care for his body and prevent disease have been started by the Soviet Department of Public Health, and great strides have been made in the education of pregnant women and nursing mothers. These measures exist, not only in Moscow and the larger towns, but I have found them in the most out-of-the-way places at great distances from the medical centres. The medical profession has shown great fortitude and perseverance all over Russia in carrying on medical reforms even in the face of overwhelming disaster. I have seen the most neat and careful medical records kept by the public health authorities in small towns on pieces of wrapping paper, etc., and in the midst of the confusion and disorder of the great epidemics and famine I have been presented with the most elaborate and carefully worked out charts of disease and public health campaigns, made by doctors and their assistants who were ragged and undernourished, living on black bread, dried herring, and potatoes.

To illustrate the fact that regeneration is taking place along some lines, I shall mention the position of the medical journals. Publication of these was practically discontinued during the worst times—1918 and 1919. But now, although there is a great shortage of paper and printing machinery, and printing is more expensive than formerly, there are more medical journals in Russia than before the Revolution, and many towns which never published a journal before are now printing their own—for example, Vologda (population 50,000) and Cherepovetz (population 22,000) each prints a medical journal.

Were we to judge by material conditions alone the outlook in Russia would be truly pessimistic. But when we see men who have lived through these conditions themselves continuing to work, devising new methods, and not losing faith, it is hard to believe that something good will not come of their efforts. The future of the hospitals, however, must depend in a large measure on the economic reconstruction of Russia.

* Headquarters, 16 Boulevard Philosophes, Geneva, Switzerland. Executive Secretary, Conrad Hoffmann.

† At a recent meeting of the Executive Committee of the European Student Relief it was decided to obtain at least 100,000 dollars to continue its work during the collegiate year 1924-25.

PUBLIC HEALTH IN ITALY.

BY

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EVERY year, more especially since the war, very large numbers of English people visit with great interest the historical cities and the most romantic spots of Italy, attentively following the explanations of the guide, and bringing to mind, before the immortal monuments of ancient splendours, the history of the people who inhabited the Italian peninsula in bygone centuries. But if, generally speaking, ancient Italy is unusually well known to the English, owing to frequent visits and from historical literature, on the other hand it is not possible to say as much for their knowledge of modern Italy, whose aspirations towards social progress and whose remarkable initiative in hygienic matters remain practically unrecognized, even among our colleagues in the United Kingdom. As a rule they are more familiar with the names of the great Italian artists than with those of Italy's medical celebrities, and have a much more intimate acquaintance with the wonderful hygienic works of ancient Rome than with those of modern Italy, which, to say the least, are not altogether unworthy of notice.

As a matter of fact, these great works of the ancient Romans, which in so many Italian cities have left indelible traces, very often induce too severe a criticism of the hygienic conditions of modern Italy. For a number of visitors, many of whom are highly educated, the opinions and judgements of English travellers during the last century still hold good. The views expressed by these travellers, who were great admirers of the beauties of our country and of its aspirations towards independence, might well have been justified in a period in which, as Gladstone said, the foreign government directing Italian affairs was a denial of God.

Recent publications on the conditions of public health in Italy afford conclusive evidence that enormous progress has been made towards the perfecting of sanitary arrangements, both in the cities and in rural districts, through very strenuous work guided by the efforts of many eminent hygienists. That the average mortality in Italy is diminishing rapidly and progressively is demonstrated by the fact that, whilst in pre-war years it was about 21 per 1,000, in 1920 and the following years it has been:

In 1920	18.77	per 1,000
In 1921	17.43	,,
In 1922	17.10	,,
In 1923	16.48	,,

If these figures are taken in conjunction with the continual increase in the birth rate in Italy, and the decreasing child mortality, it will be seen that the progress achieved has been very notable. They would appear in an even more favourable light were it possible to calculate exactly all the factors which exercise an unfavourable influence on the mortality statistics—that is, the emigration of young and healthy men and the immigration of foreigners who arrive in Italy in a very precarious state of health. The Italian population during a period of barely half a century has increased from 25 to 40 million. The number of marriages,

which decreased during the war, has rapidly increased since, though the increase in the number of births has not yet wholly compensated for the diminution which took place during the period of the war, owing to the tremendous upheaval of the social organization. It is nevertheless comforting to note that the birth rate is well on the way to reach the pre-war level, with an annual average of 30 to 31 births per 1,000 inhabitants, which corresponds to an average number of more than one million one hundred thousand births a year. Child mortality during the first year of life has diminished by 30 per cent., and the mortality of children up to the fifth year of life by 40 per cent., during the last fifteen years.

Malaria—the disease which, even in 1860, decimated the population of Italy, and was the cause of 710 deaths per million inhabitants in 1887—has now been definitely checked, and the deaths due to it were reduced to 57 per million inhabitants in 1914, and to approximately 50 in 1923.

Typhus fever, the frequency of which can be taken as indicative of the hygienic progress of a country, has progressively diminished, so that the mortality, which in 1887 was 67 deaths per 100,000 inhabitants, has been reduced to 23 per 100,000.

A fact which hygienists will find worthy of note is the progressive decline of pellagra, which in 1887 was responsible for 120 deaths per million inhabitants. This figure was reduced to 20 per million inhabitants in 1923. This malady has lost its virulent character from the time when suitable laws provided for the improvement in the nutrition of the Italian rural population, and introduced a strict control over maize, the flour of which, in the shape of "polenta," forms the principal diet of the great majority of the North Italian peasantry. This decline of pellagra in Italy, which has been reduced to a few score cases only, is mainly due to the spread of popular education, and to the steady improvement in the economic conditions of the peasant class.

The campaign waged in Italy against tuberculosis is being carried on with the utmost energy, more especially by the "antituberculosis" societies which have been founded by the State. In every province, the borough council, the Board of Health, the big industries, and the philanthropic societies combine to form one central society, which has the right to receive from the various borough councils a contribution of a few centesimi per inhabitant. These societies, of which there are thirty already in full activity, and forty-five more in process of organization, concentrate in each province the campaign against tuberculosis, thus obviating loss of money and energy, which is always so noticeable where several associations act separately. Though these societies are autonomous, they can obtain State grants and loans on very advantageous conditions for the purpose of founding sanatoriums and special hospitals. At present there are in Italy 30 large dispensaries, 28 sanatoriums with 4,800 beds, 12 tuberculosis hospitals with 1,500 beds for serious cases, 22 seaside homes with 2,700 beds, 23 preventive institutes with 2,300 beds, and 436 health centres which every year send either to the seaside or to the mountains almost one hundred thousand children. Those who remember the conditions prevailing in Italy fifty years ago must recognize the progress that has been made hygienically, especially during recent years, thanks to the unceasing work and effort on the part of the General Direction of Public Health, and of its director, Professor Lutrario, who represents Italy on the International Bureau of the League of Nations.

Some remarks and considerations on infectious diseases, submitted at the last meeting of the Superior Board of Health, may be of interest. Small groups of cases of amoebic dysentery observed in some centres are now rapidly diminishing. Mediterranean fever showed a small increase in 1922 and 1923 in Sicily, but has in general gradually decreased as a result of the strong measures taken by the health authorities to control the supply of goat's milk. It is nevertheless interesting to note that in some places, where goat's milk is not consumed at all, cases of this fever have been verified; this would indicate that other animals besides goats are capable of carrying the germs. The report, which has been presented to the head council by the General Direction of Public Health, indicates further a very noticeable decline in the frequency of small-pox outbreaks. In 1923, 250 cases of small-pox were reported in Italy, and in February of that year a slight outbreak took place in the province of Treviso. It was caused by an Indian who landed at Venice with a very high temperature, but who showed no actual symptoms of small-pox. Only after several days did an eruption of boils make its appearance on the body of a nurse who had tended the Indian, and on that of a lady who had been in the same wing of the hospital. This was the cause of the outbreak of infection, which nevertheless was soon checked by means of suitable prophylactic measures, and thanks to the very extensive resort to vaccination, which is compulsory in Italy. In this instance the epidemic was very slight and was quickly overcome; 20 cases were reported, from which 2 deaths resulted. These facts and figures are given with the object of showing that the Italian Government and the Council of Health, as well as private individuals also, are continually and energetically disseminating a knowledge of hygiene and of the prevention of disease. This propaganda is also being vigorously carried on through the medium of the schools. The new school law of the Ministro Gentile, which has encountered much criticism, not all of it justified, has, on the other hand, earned the praise of hygienists, for the reason that it has made compulsory the teaching of hygiene in the elementary schools.

Hygienic propaganda directed against venereal disease has already commenced to show excellent results, and it is therefore reasonable to expect that with regard to the solution of the very grave problems of public health, which in all civilized nations play so great a part, Italy will with dignity be able to maintain that standard which has been assigned to her by the traditions of her glorious past.

England and Wales.

JOINT COUNCIL OF THE ORDER OF ST. JOHN OF JERUSALEM AND THE BRITISH RED CROSS SOCIETY.

THE fourth annual report of the Joint Council of the Order of St. John of Jerusalem in England and the British Red Cross Society deals with the year April 1st, 1923, to March 31st, 1924, and contains seven departmental reports, the report of the finance committee, and a statement of accounts. The Council has appointed Dr. F. N. Kay Menzies to fill the place left vacant by the death of Sir Napier Burnett. He will not exercise the function of chief executive officer, but will be the director of the department of hospital and medical services. The departmental reports show that most valuable work is being carried on. The auxiliary hospitals officers' department has assisted 529 officers during the twelve months, of whom 226 were new cases; this brings the total number of cases assisted since August, 1914, to 17,088. A large proportion of the work was in connexion with the care and treatment of officers and ex-officers suffering from tuberculosis; some of them have been assisted in meeting the expenses of sanatorium treatment whilst their cases were under consideration by the Ministry of Pensions or the Officers' Appeal Tribunal. In many instances the ex-officers so helped have eventually established their claims, and the department has been able to recover from the Ministry of Pensions the greater part of the expenditure on sanatorium treatment. The emergency help committee has dealt with 20,000 new cases during the year. The administration expenses continue low, voluntary assistance being given by representatives of the Council throughout the country. There has been during the past year a marked increase in the amount voluntarily refunded by men and widows who have been assisted while their claims for pensions were pending. This emergency help scheme provides a great measure of relief not forthcoming from any other charitable source, and many thousands of deserving cases of sick and disabled service men and their dependants are benefiting by it. We have on a previous occasion given an account of the work done

under the direction of the home service ambulance committee, but we may recall that there are now 333 ambulance cars working in England, Wales, and Ireland. In many districts it is the practice for members of the Order of St. John or of the British Red Cross Society to accompany the ambulance—an example of service to the community which deserves fuller recognition than it receives at present. The hospital service department has visited eight hospitals in the country during the year to discuss matters of administrative and general interest, with a view to helping the respective committees of management. Reports of 666 hospitals were carefully examined and a report published by the late Sir Napier Burnett in July, 1923, with his comments and observations. The joint women's V.A.D. department, which was created in April, 1916, under Dame Katherine Furse, and had continued its activities under Lady Ampthill, was closed at the end of 1923. The stores department has dealt with over £19,000 worth of goods during the year, and has dispatched numerous gifts to the Ministry of Pensions hospitals. The tuberculosis subcommittee was appointed in March, 1923, to deal with the administration and expenditure of the special grant of £100,000 voted to the Joint Council by the Joint Financial War Committee for the relief of ex-officers and men suffering from tuberculosis caused or aggravated by war service. In addition to its other work the committee has reserved ten beds at the Brompton Hospital for Consumption for treating selected ex-service tuberculosis patients by tht Dreyer method. Sufficient time has not yet elapsed for a definite opinion as to the efficiency of the treatment.

London Street Ambulances.

There has been a steady increase in the calls to cases of accident received by the London County Council ambulance stations during the last seven years. Thus Fulham calls rose from 1,360 in 1917 to 3,216 in 1923-24; Bloomsbury calls from 2,669 to 6,592, and the total calls in London from 12,632 to 28,270. At the present time it is reported that there are twelve active ambulances and two spares. The chairman of the Traffic Subcommittee of the Metropolitan Boroughs Standing Joint Committee informs us that the percentage of cases in which ambulances were not immediately available on receipt of calls during the last two years was only 3.5 per cent., many cases being included where the delay was only a matter of a minute or so. The average time taken to reach a case is eight and a half minutes from the time the call is received at the station, and it is desirable to decrease the interval between the occurrence of the accident and telephoning for an ambulance. When an accident occurs the telephone exchange should be asked for "ambulance," and as soon as the caller is put in touch with the headquarters of the London Ambulance Service particulars as to the locality of the accident or illness should be given, together with the name of the caller. No charge is made for the call, whether from a public call office or from a private telephone. More facilities for telephoning are desired, and telephone subscribers who are willing to assist in this way will receive tablets containing the letter "A," to be placed outside their premises, indicating that an ambulance may be summoned from there. Those willing to help in this manner are invited to send their telephone numbers and addresses to the officer in charge of the Ambulance Service, 94, Southwark Bridge Road, S.E.1.

Scotland.

New Departments of Edinburgh Royal Infirmary.

Plans have been approved for the erection of a completely new radiological department in the Royal Edinburgh Infirmary. The building will be situated on ground at present vacant between the existing East Clinical Medical Theatre and the Pharmaceutical Laboratory, and it is estimated to cost over £12,000. A new and thoroughly modern installation of *x*-ray and other electrical apparatus will be housed in the building, and it is estimated that this will cost not less than £10,000. The building is to be a two-story structure. In the upper flat there will be rooms for electro-therapeutics, physical therapy, and applications of radium, of which the Infirmary possesses a fair supply. The ground story will be devoted to the heavier types of *x*-ray apparatus, including apparatus for deep *x*-ray therapy. An order has been placed in Paris for the construction of a thoroughly modern outfit for this purpose. Travelling apparatus will be supplied for use in the wards. Some months ago an *x*-ray surgical theatre was equipped in the Infirmary and placed under the charge of Mr. Henry Wade. The work of this theatre has been eminently successful, and it will be continued as a branch of the new department.

It is proposed to develop a school for instruction in radiology when the new department is available. The present intention is that the course for radiologists shall last one year, at the end of which the University will award a diploma to successful candidates. A shorter course will be given for the instruction of medical students. The new department will be under the direction of Dr. J. M. Woodburn Morison, who at present holds the position of consulting radiologist at the Ancoats Hospital, Manchester, and of assistant radiologist to the Manchester Royal Infirmary. He will also act as University lecturer in radiology. It is hoped that work on the new building may be started before the close of the present year, and that the apparatus will be completely installed under the supervision of Dr. Morison by the autumn of 1925.

Plans have been prepared for the erection of the Rockefeller Clinical Research Laboratory on a site in close proximity to this building, and extending from the East Clinical Theatre to the Meadow Walk. The East Clinical Medicine Theatre will be reconstructed, and will be available to the workers in the Rockefeller Clinical Laboratory and to those in the radiological department. The new clinical laboratory will contain rooms for research work and smaller wards sufficient to accommodate twelve beds (six male and six female), which will be available to all the staff of the Infirmary for any special clinical research work that it may appear desirable to carry out. It is expected that this research laboratory will be ready during 1925. Owing to the elaborate character of the building designed, it will in all probability require for its construction all the money already presented for this specific purpose, but it is hoped that a further grant will be made by the Rockefeller Trust to meet the cost of its equipment.

Chair of Surgery in the University of Glasgow.

Mr. Archibald Young, B.Sc., M.B., C.M., F.R.F.P.S.G., has been appointed by Royal Warrant to be Regius Professor of Surgery in the University of Glasgow, in succession to the late Sir William Macewen. Mr. Young was born in Glasgow fifty years ago, and received his education at Glasgow High School. He continued his studies at Glasgow University, where he had a career of much distinction. In 1893 he took his B.Sc. degree in natural science, and in 1895 he graduated M.B., C.M. with high commendation. Having gained experience as resident physician and surgeon in Glasgow infirmaries, he acted for a time as private assistant to the professor of pathology, the late Dr. Joseph Coats. In 1898 he was appointed assistant to Sir William Macewen, with whom he was associated in systematic and clinical teaching for some years. During the South African war he served as a civilian surgeon attached to No. 3 General Hospital in Kroonstad, where he made valuable observations on injuries to peripheral nerves, and the results of these were embodied in a paper which was included in the official surgical report of the war. This report was published in 1905, and it is worthy of note that Mr. Young's paper on "Gunshot wounds of peripheral nerves" was the only independent contribution from a civilian surgeon which appeared therein. He had further war experience during the European war, as, after mobilization with his unit (the 4th Scottish General Hospital) with the rank of major, he was appointed by the Scottish Command to the post of neurological expert. The valuable work which he carried out during his four years' tenancy of this post was recorded in a paper which he read to the International Congress of Surgery held in London last year. Mr. Young has been

recognized for many years as an enthusiastic and successful teacher of surgery. In 1913 he was appointed professor of surgery in the Anderson College of Medicine, Glasgow, where for some years past he has acted as dean, and much of the success which has attended the work of this school in recent years is the direct result of his powers as a teacher and his organizing ability. In 1913 he became a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow, for which body, and for the University, he has frequently acted as an examiner in surgery. He has held from time to time other important surgical appointments, notably those of visiting surgeon to the Eastern and Western District Hospitals in Glasgow, and to the Broadstone Jubilee Hospital, Port Glasgow. Mr. Young has for many years taken a very active part in the work of the Glasgow Royal Medico-Chirurgical Society, of which he was this year elected president. In addition to the important papers already mentioned in connexion with war surgery, Mr. Young has been a frequent contributor to surgical literature, on many and varied subjects. Mention may be made of his work on skin grafting by the whole-skin method, on the operative treatment of fractures, and on the treatment of gastric and duodenal ulcers, which embodied the results of much original research. Mr. Young has in these and other contributions shown his natural gifts of earnest and painstaking research, and in his new post he will have abundant opportunity to exercise those gifts, and to foster the enthusiasm for research in his assistants and co-workers. It is well known that he is a strong believer in the value of unselfish collaboration of workers for the advancement of scientific surgery, and it is confidently anticipated that in the hands of Mr. Young the high traditions of the chair of surgery in Glasgow University will be well maintained.

The Vale of Leven Cottage Hospital.

A cottage hospital has been established at Broomley House, Balloch, for the use of the inhabitants of the Vale of Leven, in memory of the late Mr. Henry Brock, who bequeathed £15,000 for the purpose. Mr. Brock's death occurred during the war, and since building at that time was not possible the money was invested and increased to over £20,000. The reconstruction of Broomley House was carried out under the general advice and supervision of Dr. D. J. Mackintosh, medical superintendent of the Western Infirmary, Glasgow. An excellent cottage hospital on an ideal site has now been obtained at a cost less than would have been the case had a new building been erected. It is expected that after all costs have been paid a balance of about £10,000 will remain as the nucleus of an endowment fund. Two general wards have been constructed adjoining the operating theatre, and with kitchens and sanitary annexes complete in every detail. The children's ward, with a balcony, contains four balcony cots for open-air treatment. A large room is available for private patients, and there is ample accommodation for the staff.

East Fortune Sanatorium.

The first annual report of the East Fortune Sanatorium at Drem, East Lothian, covers the period between the opening of the sanatorium in December, 1922, and May, 15th, 1924. At the commencement sixteen beds for females were provided, and forty-eight beds for children were added on January 1st, 1923. The sanatorium occupies the site of an aerodrome constructed during the war, and the demolition of the airship sheds and related structures was only completed by the middle of April, 1924, so that at first it was only possible to admit advanced cases in small numbers. The institution when complete will have 199 beds—fifty-eight for the treatment of children, sixty-two for adult females, and seventy-nine for adult males. Provision has been made for patients in all stages of the disease, forty-four beds being allocated for advanced male and twenty-six for advanced female cases. These beds will be placed in buildings specially designed to facilitate nursing, and the treatment of disease in other areas than the lungs. The provision of an *x*-ray outfit, operating theatre, artificial light room, and plaster and celluloid rooms is contemplated. The treatment employed in the sanatorium includes the use of sunlight and a carbon arc light, installed for the winter months. Tuberculin administration by inunction was found to be effective in children, and for some months Professor Dreyer's new tuberculin has also been used, good results being obtained in cases of gland and bone tuberculosis.

Glasgow Ophthalmic Institution.

The following have been appointed visiting surgeons to the Ophthalmic Institution which is connected with the Glasgow Royal Infirmary: Thomas Stewart Barrie, M.B., Ch.B., F.R.F.P.S.G.; Alexander Garrow, M.D., Ch.B.

Ireland.

Kilkenny Mental Hospital.

At the last meeting of the committee of the Kilkenny Mental Hospital a letter was read from the Ministry of Local Government with reference to the question of appointing an assistant medical officer to succeed Dr. Grace. The letter pointed out that under Section 84 (I) of the Local Government Act, 1898, at least one assistant medical officer must be appointed in each district lunatic asylum, and that it was therefore not open to the committee to adopt a motion to make no appointment. The Minister went on to state that he was advised that, in view of the necessity of raising the standard of training of assistant medical officers, appointments to these posts should be probationary in the first instance, and that in advertising vacancies preference should be given to a candidate who had a recognized qualification in mental diseases, or was willing to undergo a course of instruction as early as practicable after taking up his duties. It might be necessary that facilities by way of study leave should be given in order that the officer appointed might, during the probationary period, obtain special training; it was suggested that an increase of salary should be provided when these conditions had been fulfilled. As there will be only one assistant medical officer, the Ministry considers it advisable, in the interests of the institution generally, that the vacancy should be filled by a man. The practice of remunerating officers partly by a salary in cash and partly by allowances in kind is held to be open to objection on the ground of economy, and the Minister suggested that remuneration should be by an inclusive cash salary, with no allowances, except apartments. The officer appointed might, if he so desired, make an arrangement with the committee with regard to having the use of official furniture. In recent appointments in other mental hospitals the Minister has approved of proposals fixing the salary of £300 a year during the probationary period, with a proviso that it be increased to £350 when the appointment is made permanent. The clerk stated that Dr. Grace had a salary of £380, £120 cash in lieu of emoluments, and £20 for vegetables and laundry, total £520. The committee decided to fix the salary at £200 a year for Dr. Grace's successor, and allow the same rations and allowances as enjoyed by Dr. Grace.

Correspondence.

CARDIAC DELIRIUM.

SIR,—I am late in reading the note concerning "cardiac delirium" by my friend, if I may venture so to call him, and brother graduate of Toronto, Dr. Rudolf. In the use of this name Dr. Rudolf thinks I have fallen from my own standard of English, in any case, I am sure, no very giddy descent. But have I fallen? Dr. Rudolf says that the name "delirium cordis" is already given to an irregular action of the heart due to auricular fibrillation or other similar perversion.

My reply must be that in all past time since the word came into use it has been used to signify a rage of the mind, and that its application to cardiac agitation is metaphorical only. In scientific matters metaphors are rarely safe, and I am not sure that in this instance the name is very happily applied to somatic conditions? But this I say with great respect to my critic.—I am, etc.,

Whitby, Aug. 16th. CLIFFORD ALLBUTT.

X-RAY INTERPRETATION.

Sir,—Judging by Dr. Jordan's letter in the Journal of August 2nd (p. 215), the point at issue between us is fundamental, and since we approach the matter from such different angles we are unlikely to achieve agreement. To me the possibilities of radiology as a contribution to diagnosis are so great—possibilities to the demonstration of which Dr. Jordan has himself so ably contributed—that it is all the more pathetic to see experts in this science attempt to build up complete theses, *from their data alone*, concerning difficult cases submitted to them for investigation. The clinician does not attempt this feat, nor the bacteriologist, nor the biochemist—or they should not. In his reference to the skilled oculist who "diagnoses that the characteristic retinitis he sees is due to albuminuria" Dr. Jordan subscribes to a bastard pathology which is not even consistent with facts, and in doing so he proves the futility of the very licence for which he pleads. The appearance mentioned may be present without albuminuria, and, when albuminuria is present, the most the oculist will say (if he be wise as well as skilled) is that the albuminuria and the retinitis are associated phenomena.

Unfortunately the trouble does not end with bastard pathology; it is more mischievous than that; hard in the wake of the effort to strain the potentiality of any method past its physical limit comes that very human desire to find the thing the observer looks for, be it the disease that occupies his fancy at the time, or the thesis he is anxious to establish by a multitude of cases. From such human frailty Dr. Jordan, no more than the rest of us, is likely to be free.

For these two reasons, therefore, Sir, I abide by my criticism, made as it was in all frankness, and yet in all sympathy, looking anxiously to my own withers the while.—I am, etc.,

London, W.1, Aug. 15th. Thomas Horder.

LYMPHANGOSTOMY, NOT LYMPHATICOSTOMY.

Sir,—All your readers must have been interested and instructed by Mr. Arthur Cooke's paper on lymphaticostomy in your issue of June 14th, but some of us of a philological turn of mind will have been set thinking about the name given to this new procedure, which dates apparently from 1922. Having no classical attainments I hesitated in the hope that some scholar, who could speak as one having authority, would protest against the new word, but as it has since been repeated in your pages without any protest I venture to rush in in place of those timid angels.

I take it that "lymphaticostomy" is a term meant to be descriptive of the operation of making a mouth in a lymphatic vessel. It is the *vessel* in which the mouth is made, and surely, therefore, the Greek word ἀγγεῖον should be adapted as in the well established words "lymphangitis" and "lymphangiectasis," etc. I therefore put in a plea for "lymphangostomy" in place of "lymphaticostomy." I am aware that it may be retorted on me that lymphangitis is a shameful hybrid, "that would have made Quintilian stare and gasp" as much as Gordon or Colkitto, for the word "lymph" is not derived from the Greek. Yet the compound's right to exist is established by prescription, and for the sake of uniformity new names for diseases and cures affecting the lymphatic vessels may best be formed on the same basis.

We may regret the jumble of Greek and Latin in our medical terminology, but let us thank heaven and the classical tradition that we do not have to call our mucous membranes "slime-skins" or the much abused appendix a "worm process" after the chauvinist manner of our friend the late enemy!—I am, etc.,

August 16th. Lexicologist.

NON-OPERATIVE TREATMENT OF TUBERCULOUS CERVICAL GLANDS.

Sir,—A general practitioner, aged 44, had enlarged (left) cervical glands at the age of about 6. He was a "delicate child" with conspicuously poor appetite. At age 9½ severe diphtheria (with all the sequelae) left him in very poor health with considerable increase in size of the left cervical glands. He lost two terms at school. The question of operation was raised, but negatived. At about 12 the glands, which had diminished in size, again enlarged, and this was accompanied by phlyctenular ulceration (both eyes). At 13½ he had pleurisy with effusion. He lost one term at school. From 16 he ceased to be "delicate," and by 17 the glands had become practically normal. At 19, in his first term at hospital, he was admitted for corneal ulceration. The ulcers healed without scarring, but an evening rise of temperature led to a physician being called to see him. An enlarged spleen was found. No further manifestations referable to tubercle have occurred, despite the ordinary stress of general practice from 25 to 34, a compound fracture, an attack of septicaemia, and several attacks of influenza.

War service in France was from age 34 to 39, continuously from September, 1914, to June, 1919 (except for three months in England when wounded), and included more than a year as infantry medical officer. He is again in general practice, and is, Sir, your obedient servant,

August 17th. Quite Well.

DIAPHRAGMATIC HERNIA.

Sir,—I have read Dr. McCabe's report of his case of diaphragmatic hernia with interest (August 9th, 1924, p. 236). Many years ago my father and I had a case almost exactly similar, at any rate as far as the *post-mortem* appearances were concerned.

A child aged 1 year and 3 months crawled under a thrashing engine and got squeezed between the firebox and the ground—a space of about six inches. The child did not seem much the worse for the accident and soon regained its normal condition, and appeared to be much the same as the other children, except that he suffered from some dyspnoea and appeared worse after meals. When he was 3½ years of age he was seized with violent pain and abdominal symptoms, and died in a few hours. The necropsy revealed a hole in the left side of the diaphragm, through which the whole of the stomach and a loop of colon had passed into the left pleural cavity. The aperture in the diaphragm was of oval shape, two inches long and one inch wide. The lung was compressed and the heart pushed well to the right side.

The case was published in the Journal at that time, and, should Dr. McCabe wish it, I should be happy to send him a copy of the original paper, with a sketch of the organs in the position they occupied.—I am, etc.,

Charles Randolph, M.R.C.S.

Milverton, Somerset, Aug. 11th.

R.A.M.C.(T.A.).

Sir,—With reference to the correspondence on the above subject may I be permitted to point out that there is a group of medical officers whose service could be made use of were the Territorial Army authorities so inclined—namely, the medical officers of the Territorial Cadet Force. The formation of R.A.M.C.(T.C.F.) or the granting of honorary commissions in R.A.M.C.(T.A.) to medical officers of cadet units somewhat on similar lines to the honorary commissions in R.N.V.R. granted to officers of naval cadet units would, in a measure, help to combat the shortage in the R.A.M.C.(T.A.).—I am, etc.,

Medical Officer, Territorial Cadet Force.

August 9th.

The Services.

FOREIGN DECORATIONS.

The following decorations have been conferred by the President of the French Republic for distinguished services rendered during the war 1914-19: *Médaille de la Reconnaissance Française: en Argent*, Captain Alfred S. Bruzaud, R.A.M.C.(T.F.) (now retired T.A.); temporary Captain Simon J. Coulter Fraser, R.A.M.C.; temporary (Honorary) Major Louis F. Knuthsen, O.B.E., R.A.M.C.; *en Bronze*, Captain Lionel T. Challenor, R.A.M.C.(T.F.), temporary Captain Richard B. Johnson, R.A.M.C., temporary Captain Frederick A. Ross, R.A.M.C.; *Médaille des Epidémies: en Vermeil*, temporary (Honorary) Major Louis F. Knuthsen, O.B.E., R.A.M.C.

DEATHS IN THE SERVICES.

Colonel Benjamin Bloomfield Connolly, C.B., Army Medical Staff (retired), died at Brighton on June 20th. He was born on September 10th, 1845. He was the son of the Rev. J. C. Connolly, R.N., and was educated at Cambridge, where he gained an

exhibition at Gonville and Caius College, and at Guy's Hospital; he graduated B.A. in 1867, M.A. in 1871, and B.Ch. and M.D. in 1891. He also took the L.S.A. in 1869, the M.R.C.S. in 1870, and the F.R.C.S.I. in 1889. After serving in the Franco-German war of 1870-71, he entered the army as assistant surgeon in 1871, and served in the 40th Foot, now the South Lancashire regiment. He became surgeon major in November, 1882, receiving special promotion for services in the Egyptian war. He was promoted surgeon lieutenant-colonel after twenty years' service, and retired on October 21st of the same year. During the South African war he was re-employed at Woolwich, and promoted to colonel (his third special promotion); and during the recent war returned to duty again, and held the post of A.D.M.S., Sussex district. He had a long list of war service. Besides the Franco-German war, mentioned above, he served in the Joweki campaign, on the North-West Frontier of India, in 1877-78, receiving the Frontier medal with a clasp; in the Zulu war of 1879; in the Egyptian war of 1882, when he was present at the battle of Tel-el-Kebir, received the medal with a clasp, and the Khedive's bronze star, and was specially promoted to surgeon major; in the Eastern Sudan campaign of 1884, when he was at the battles of El Teb and Tamai, was mentioned in dispatches in the *London Gazette* of May 6th, 1884, and gained two clasps to the Egyptian medal, and the Order of the Osmanieh; and in the Nile campaign of 1884-85, in command of the camel bearer company, when he was present in the attack on the convoy of wounded on February 13th, 1885, was mentioned in dispatches in the *London Gazette* of August 25th, 1885, received another clasp to the Egyptian medal, and was specially promoted to a higher rate of pay. He also received the C.B. in 1900. He was the author of treatises on Asiatic cholera and on puerperal fever.

Colonel George William Patrick Dennys, C.I.E., Bengal Medical Service (retired), died at Milford-on-Sea, Hants, on July 30th, aged 67. He was born at Karachi on April 28th, 1857, the son of Captain Julius Boutell Dennys, 38th Bengal Infantry, and educated at Bart's, taking the M.R.C.S. and L.R.C.P.Lond. in 1878. He entered the I.M.S. as surgeon on August 31st, 1879, passing third into and first out of Netley, became colonel on June 16th, 1910, and retired on January 10th, 1917. Most of his service was passed in civil employment in the Punjab, where he was civil surgeon of Peshawar and of Delhi, among other important stations. Later, in the administrative rank, he was inspector-general of hospitals in the Central Provinces. He served in the Afghan war of 1878-80, receiving the medal; and was given the C.I.E. on January 1st, 1915.

Major Joseph FitzGerald Blood, Bengal Medical Service (retired), died at Birkenhead on July 29th, aged 71. He was the son of FitzGerald Blood, Esq., of Quin, County Clare, and was educated at Trinity College, Dublin, where he graduated as B.A., M.B., and M.Ch. in 1875, and as M.A. and M.D. in 1892. After serving as house-surgeon and clinical ophthalmic assistant at the Adelaide Hospital, Dublin, he entered the I.M.S. as surgeon on March 31st, 1877, became surgeon major after twelve years' service, was placed on temporary half-pay on account of ill health on December 21st, 1890, and two years later was invalided out of the service. After his retirement he settled at Birkenhead, where he held the posts of surgeon, and later of consulting surgeon, to the Birkenhead Borough Hospital, and was also for some time a lecturer in the Liverpool School of Tropical Medicine. He served in the Afghan War in 1878-79, in the Kandahar and the Thal-Chotiali Field Forces, and received the medal.

Major Philip John Veale, Indian Medical Service (retired), died in London on July 30th, aged 37. He was born on September 25th, 1887, educated in the Bristol Medical School, and took the M.B. and B.S. of London University in 1910. Entering the I.M.S. as lieutenant on January 27th, 1912, he became major in 1923, and was invalided for ill health so recently as March 1st, 1924. He served in the recent war of 1914-19, and was mentioned in dispatches in the *London Gazette* of June 5th, 1919.

Obituary.

GEORGE HEATON, F.R.C.S.,

Consulting Surgeon, General Hospital, Birmingham.

WE greatly regret to announce the death of Mr. George Heaton, which occurred on Tuesday, August 12th. Mr. Heaton had been ill for some time, but he made a temporary recovery, and the end came unexpectedly.

For many years a prominent figure in the medical life of Birmingham, George Heaton was 63 years of age, having been born on June 9th, 1861. He was the son of the late George Heaton of Handsworth, who was prominently associated with the Birmingham Mint. He received his early education at Clifton College, whence he went up to Magdalen College, Oxford, with a demyship in science, and took the degree of B.A. with a first class in the honours school of natural science in 1883. He proceeded to St. Bartholomew's Hospital, where he became senior scholar and gold medallist, and afterwards house-surgeon. He obtained the M.A., M.B., Ch.B.Oxford, and M.R.C.S., L.R.C.P. in 1888, and secured the F.R.C.S.Eng. in 1891. Birmingham has always been the chief field of his professional activities, and he held many appointments in the city. He served the General Hospital as honorary surgeon, and at the time of his death was on the consulting staff; he was consulting surgeon to the Birmingham and Midland Hospital for Sick Children, the Corbett Hospital, Stourbridge, the Birmingham General Dispensary, the Royal Institution for the Deaf and Dumb, and the Birmingham Blue Coat School. He was examiner in surgery at the University of Oxford and lecturer on operative surgery in the University of Birmingham. Mr. Heaton was a vice-president of the Section of Diseases of Children at the Annual Meeting of the British Medical Association when it met in Birmingham in 1911. His published works include a book on *Surgical Interference in Diseases of the Stomach*, and a number of papers, mainly on the surgery of the abdomen, contributed to the columns of the BRITISH MEDICAL JOURNAL and other professional papers.

MR. ALBERT LUCAS, senior surgeon to the General Hospital, Birmingham, sends us the following tribute to his late colleague's memory: The tragically sudden death of my old friend and colleague George Heaton came as a great shock to me and the profession in the city. We were students together in the same year at St. Bartholomew's Hospital, and later for many years colleagues at the General Hospital, Birmingham. Heaton went up to St. Bartholomew's with a great reputation from Oxford, and was soon recognized as the best man of the year, taking most of the prizes and scholarships. He elected to settle down in his native city and was connected with the General Hospital continuously for thirty-five years. His health was not over good, the result of an illness he suffered whilst resident surgical officer at the General Hospital. He was an excellent teacher, good clinician, and a masterly operator. The clinical notes of his cases struck me as models of what such notes should be. His business capacity and his advice were, I know, much valued by the boards of management in the institutions with which he was connected. His opinion as a consultant was greatly valued by practitioners in the city and the surrounding districts. He was very fond of sailing, and was a keen golfer. He was deeply interested in the work of the Birmingham Medical Benevolent Society, an institution which does a great deal of good in a quiet unostentatious manner. He was buried on August 15th at Handsworth Parish Church in the presence of a very large number of his old colleagues and practitioners of the district. We shall miss him, and the city will be the poorer by his death.

THE LATE DR. ANDREW SMITH.

MR. GREY TURNER, in the course of his appreciation of the life and work of the late Dr. Andrew Smith of Whickham, expressed the hope that some of Dr. Smith's former assistants would speak of their experiences while there. In response to this suggestion "A. F. W. M." has sent us the following tribute:

It was my privilege to be one of Dr. Andrew Smith's assistants during a period of two years, and I look upon that experience as the most important in my medical life. I think I am right in saying that the majority of men who were his assistants were "outdoor" assistants—they had the management of a branch of the practice—and in that lay a very valuable factor. The real responsibility of practice was placed on their shoulders; they felt they had to justify the faith placed in them by their chief, and this lead to a self-reliance of inestimable value when the time came for their starting practice. At the same time they had the satisfactory feeling that they had behind them, not only an able and shrewd diagnostician, but one ever ready to come to their aid at any time of day or night, and that invariably cheerfully.

When I look back to these two years, those pleasant Sundays to which Mr. Turner refers stand out most clearly as real red-letter days. After the hospitable meal—and at Dr. Smith's house not only one, but many extra plates could always be set at a moment's notice—any new cases of interest or consequence, or any new development in a case which had previously been under discussion, were talked over and looked at from every aspect. As can well be

imagined in an extensive practice which at that time kept three men working hard—the hardest worker and least self-sparing being Dr. Smith himself—there was no lack of material for discussion. Nor were those post-prandial clinics purely discussive—patients who were able were brought to the consulting room for clinical demonstration, and there Dr. Smith, without ever seeming to teach, yet taught us of the younger generation many things. Most important of all, he taught us to love our work and infected us with the tremendous enthusiasm which he ever manifested. He taught us, too, by example the importance of absolute thoroughness of examination. In obscure cases his hard-headed and cautious analysis of all the evidence of signs and symptoms might be called typically Scottish. His diagnoses were accurate because his methods were sound. To me these medical discussions were of great interest and value, but I think I enjoyed even more those rich evenings when, till well beyond midnight, we could listen to him discoursing on literature or philosophy, and sometimes get him to re-read a paper from those numerous contributions he made to literary and philosophic societies. His wide and varied knowledge of literature, his deep reading among the philosophers, and the evidences of his own thinking, made one wonder how his busy professional life left him any time for such recreations. With all this the social side of medicine was not neglected, and I retain happy memories of medical dinners to which he took me as his guest—dinners where the conversation was no less sparkling than the wine, and where his geniality and kindliness added to the happiness of everyone.

The sense of duty, integrity, and honesty were manifest in him; hard work seemed but a pleasure to him. Deeply religious in the very truest sense of the word, he was an ideal doctor to serve under as an assistant. His was a temper to envy and to try to emulate—never hasty, never visibly angry, never put out by hurry or worries. He looked for and found the best in others, and his own best seemed ever to be uppermost. To those of us who knew of his movements and doings his death came with most tragic suddenness, for up to the end his enjoyment of life, one might almost say his youthfulness, was manifest. And yet I believe he would have had it no otherwise. All who have been privileged to be assistants to Andrew Smith mourn the loss of a sincere friend, and will carry with him to his own journey's end the memory of an able doctor and an upright man.

Dr. JOHN MACKENZIE died at his residence in Ingleton, Yorkshire, on June 30th, at the age of 69. He was born at Lochinver, Sutherlandshire, and was educated in Edinburgh, where he received the diplomas of L.R.C.P., L.R.C.S., and L.M. in 1881. He was district medical officer and public vaccinator for the parishes of Ingleton, Thornton in Lonsdale, and Burton in Lonsdale Settle Union. He was also a justice of the peace. His niece, Dr. MARION E. MACKENZIE, sends the following appreciation:

Dr. John MacKenzie of Ingleton, a country village in the Yorkshire hills, spent his life in the service of others, endearing himself to his patients by his cheery optimism and his ungrudging services. At times the pressure of work was almost unbearable, and this was the case during the epidemic of influenza last winter, which laid the seeds of the illness which ended his life. He had sometimes to walk to a house, inaccessible even in the days when he drove a dog-cart, and on one occasion he was only saved from being lost at the foot of Whernside in the snow by a light in a cottage window, all landmarks being obliterated. Summoned once for a visitor who had been exploring the caves and had fallen down a pothole 100 feet deep, the doctor was lowered by a rope and splinted the broken leg. This action was much admired by those to whom potholes were familiar, and since it took seventeen hours to get the patient out one can realize the difficulties involved. For the last three years of his life the pits were not working. During the whole of that time he attended the families of the miners, supplying them with medicines, without charge. It was characteristic of him that when faced with the necessity of parting with his old gardener, he broke down and said he could not do it. On the Sunday following his death the vicar of the parish where he is buried compared Dr. MacKenzie's life to a river, with its strenuous overcoming of difficulties, its beauty, its trend towards the ocean—symbolic of the trend of man towards God. He added that on the day he was laid to rest the people had shown what they thought of him by coming in such numbers to pay a last tribute that the church could not hold them.

Dr. JOHN SAMUEL GREENE died at Estancia Bagual, Buenos Aires, on June 27th, aged 81. He received his medical education in Dublin at the Royal College of Surgeons in Ireland, took the diplomas of L.R.C.S.I. and L.M. in 1863, L.R.C.P.I. in 1864, and became M.D.Montevideo and Buenos Aires in the early seventies. After serving for two years as surgeon to the Cape Mounted Rifles he settled in the Argentine in 1866, where he carried on a large practice. He more or less retired from active practice in 1890, and invested in landed property. His upright character and devotion to duty won for him the respect of a large circle of friends of all nationalities, as was shown by the attendance at the funeral ceremony on June 29th. His son is Dr. A. C. Greene of Grange-over-Sands.

Professor LUZZATTO, reader in microscopy and biochemistry in the University of Ferrara, Italy, died on July 13th at the age of 50. He had published a considerable number of papers on various medical subjects, and an important monograph on the cystic kidney.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on August 6th the degree of Bachelor of Medicine (B.M.) was conferred on I. M. Sidley.

Medical News.

DR. ALGERNON D. BRENCHLEY has been elected Master of the Society of Apothecaries of London.

As the result of an appeal for funds to endow a bed in the Leeds General Infirmary in memory of the late Mr. Walter Thompson, surgeon to the infirmary, who died in May last, Sir Berkeley Moynihan has handed the sum of £1.265 to the authorities of the institution. It is proposed to fix a memorial plate over a bed in one of the wards.

UNDER the auspices of the Fellowship of Medicine and Post-Graduate Medical Association a special course in infants' diseases, for medical officers of welfare centres and others, will be given at the Infants Hospital, Vincent Square, Westminster, from September 15th to 27th. The fee for the course will be £3 3s. The names of practitioners wishing to attend (the number will be limited to fifteen) should be sent to the secretary to the Fellowship, 1, Wimpole Street, W.1.

THE Nightingale Fund Committee of St. Thomas's Hospital has established, as an experiment, a travelling fellowship, the holder of which is to visit the United States and Canada to examine and inquire into nursing, especially in relation to public health, and to report. Miss Olive Baggallay has been appointed Nightingale Travelling Fellow, and the Battersea Borough Council, under which she is working, has granted her a year's leave for this purpose.

THE Wellcome Historical Medical Museum will be closed for cleaning and redecoration from September 1st to 30th inclusive.

ON the occasion of the eighty-eighth Congress of German Natural Science and Medicine the German Society of Epidemiology will hold its annual meeting at Innsbruck from September 23rd to 26th. Papers will be read on the objects of epidemiological investigation, by G. F. Wolter of Hamburg; on what epidemiology can learn from outbreaks on ships, by H. Gleitsmann of Kiel; on the first epidemic of syphilis (1495–97), by K. Sudhoff; and on the history of the development of epidemiology, by G. Sticker.

DR. PIERRE LUCCHINI, writing under the name of Pierre Dominique, has obtained the Balzac prize for literature with a novel entitled *Notre Dame de la Sagesse*.

A REUTER telegram from Peking states that the American Red Cross has given 100,000 gold dollars to the fund for the relief of the flood-devastated areas in China.

THE National Association for the Prevention of Infant Mortality (117, Piccadilly, London, W.1) is arranging a post-graduate course of lectures on child welfare for health visitors, nurses, and midwives at Nottingham, Chesterfield, and Derby, from September 5th to October 4th inclusive. Particulars may be obtained from the honorary secretary, Miss Halford.

THE Automobile Association has prepared hotel location maps of England and Wales and Scotland, on which are shown the locations and classifications of the hotels appointed by the association. The maps, which are supplied free to members, serve as a "territorial" key to the alphabetical list of towns given in the A.A. Handbook, in which full particulars of tariffs, telephone numbers, classifications, etc., are to be found.

THE twelfth annual report of the British Dentists' Hospital records the large increase in the work carried on at the hospital centres and clinics during 1923, as compared with the previous year. The number of patients' attendances increased from 13,437 to 17,137, and this necessitated an increased number of sessions being held, the figure rising from 1,795 to 1,896. Progress is being made in opening new centres, and additions to the equipment of the clinics opened during war time, under arrangements with the borough councils, will result in making these clinics models of their kind. In seven London boroughs there is an arrangement for special work in connexion with the treatment of patients at the tuberculosis dispensaries. The hospital deals with the large class of persons who, possessing limited means, are unable to pay the ordinary charges of dental surgeons in private practice.

ARRANGEMENTS have been made for students of the Lahore Medical College to be received in Madras hospitals for midwifery training, since there has been difficulty in obtaining the requisite amount of this training in Lahore. The Punjab Government has now decided to set aside a sum of 1½ lakhs of rupees for the purchase of a suitable site for the erection in Lahore of a special maternity hospital.

THE second Spanish Congress of Medical Science will be held at Seville next October.

THE Tokyo Imperial University, which was destroyed in the recent earthquake, is to be reconstructed at a cost of over £4,000,000.

A NEW post-graduate hospital, to be known by the name of Sydenham, is about to be established in New York. The plans are ready and the estimated cost for building and equipment is 1,250,000 dollars.

THE *Journal of the American Medical Association* states that the curious penalty of suspension of the right to practise for a period of thirty days has been imposed on Dr. Dwight I. Roush of Springfield by the Ohio State Board of Examiners. He is, it is said, an exponent of the Abrams electronic reactions, and was charged with publishing false and misleading statements concerning the cure of incurable diseases.

THE late Mrs. Mary Frances Thorne of Lossiemouth and Heckfield, Hants, has bequeathed £1,000 each to the London Hospital and to the Royal Free Hospital, Gray's Inn Road, for the maintenance of a bed in each institution.

THE French Society of Ophthalmology will hold its thirty-eighth congress at Brussels on May 11th, 1925. Further information can be obtained from the General Secretary, Dr. René Onfray, 6, Avenue de La Motte-Piquet, Paris VII^e.

A MEDICAL faculty has been established at the University of Omsk in Siberia.

THE seventy-seventh annual report of the Chinese Hospital, Shanghai, the oldest existing British public institution in that city, contains a report of progress in the training of nurses, three of whom were presented with certificates of the Nurses' Association of China during 1923. Sixteen male and eleven female nurses were under training during the year. The number of in-patients during that period was 2,902; out-patient visits amounted to 104,662. It is hoped that eventually the hospital may form part of a medical school for the training of Chinese doctors.

IN connexion with the Exhibition of Pure Science at Wembley, arranged by the council of the Royal Society, a handbook has been issued, containing a series of articles by well known authors intended to give some indication of the state of science at the present time. Professor E. H. Starling contributes an article on the circulation of the blood; Professors A. V. Hill and E. P. Cathcart deal with the physiology of muscular work; and Professor D. T. Harris discusses the biological action of light. Professor Irvine Masson supplies an account of the origin of the Royal Society, and an illustration of its coat of arms, granted to it by Charles II, is given. The handbook contains also a descriptive catalogue of the exhibits, and may be obtained from Messrs. A. and F. Denny, Ltd., price 1s., postage 3d.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.* Authors desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Financial Secretary and Business Manager, 429, Strand, W.C.2, on receipt of proof.

Communications intended for the current issue should be posted so as to arrive by the first post on Monday or at latest be received not later than Tuesday morning.

ALL communications with reference to advertisements as well as orders for copies of the JOURNAL should be addressed to the Financial Secretary and Business Manager, 429, Strand, London, W.C. Attention to this request will avoid delay. Communications with reference to editorial business should be addressed to the Editor, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.2.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—not necessarily for publication.

THE telephone number of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is Gerrard 2630 (Internal Exchange). The telegraphic addresses are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London.*

MEDICAL SECRETARY, *Medisecra Westrand, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone 4737, Dublin), and of the Scottish Office, 6 Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

SUN BATHS.

"H. B." asks where in Great Britain treatment by sun baths can be obtained for a male adult suffering from worry and chronic nasal catarrh; nothing else.

INCOME TAX.

Damaged Motor.

"AUTOVAC" had a motor smash which wrecked his car and put it out of commission for six months. He bought a second-hand car rather than hire one for so long a period and now has the two cars. How does he stand as regards an allowance for the cost?

*** We cannot see that he has good grounds in law for a claim. The fact that he could have claimed an allowance if he had decided to hire does not affect the fact that his purchase of the second car was a "capital" transaction. If he were to sell that car at once the local inspector might agree in the special circumstances to regard the loss incurred as part of the accident cost, on grounds of equity rather than law. Strictly, however, what "Autovac" has done is to raise his equipment to a two-car standard, which will only enable him to claim a renewal allowance on that basis (instead of on a single-car basis) in future.

Motor Car Allowances.

"H. F. A." inquires (*a*) as to the allowance to be made in respect of a motor car being purchased on the hire instalment system, and (*b*) as to an allowance for the fact that the car is driven by the practitioner's wife.

*** (*a*) No allowance is due for depreciation, as the statutes discriminate between traders, etc. (Case 1, Schedule D), and professional men (Case 2, Schedule D). If the purchased car is in fact a replacement of an old car we are of opinion that the instalments of the purchase price are allowable, subject to any proper adjustment in respect of capital if the car is of better grade than the old one. (*b*) If the wife does in fact receive wages to the amount of £45 per annum for driving the car, and such wages are reasonable in amount having regard to all the circumstances, the allowance of £45 can be claimed, but not otherwise.

Succession: Partner's Expenses.

"R. W. F." inquires (1) as to the basis of assessment, and (2) as to expenses incurred by himself in doing partnership work.

*** (1) Successors to a practice are assessable on the basis of the earnings of the three previous years, notwithstanding the change. It is, however, open to them to lodge an application at the end of the first year of the new partnership (as also at the end of the second and third) if they can show that the profits have fallen short from some specific cause, and thereon to have the assessment reduced to the amount of the actual profits. (2) A deduction should be made for expenses properly incurred by a partner in doing his share of the work of the practice; locomotion expenses are nearly always dealt with in this way. The expenses must be deducted in calculating the profits of each of the years entering into the three years' average, or of the

actual year's profits if the three years' average is displaced; if, for instance, the whole of the allowable expenses of "R. W. F.'s" predecessor have been deducted in arriving at the assessment, he cannot deduct further expenses from his share of that assessment.

LETTERS, NOTES, ETC.

Cycling for Constipation.

Dr. G. D. Mackintosh (Bolton-le-Sands, Carnforth) writes: Allow me to call attention to the great value of cycling as a cure for constipation.

Dermatitis due to Caterpillars.

Dr. Charles B. Rossiter (London) writes: Dr. Castle's note (August 2nd, p. 213) *re* the dermatitis caused by hairy caterpillars reminds me of an observation I made when practising in Cape Colony many years ago. At certain seasons of the year myriads of gaudy hairy caterpillars would cover the veld for very wide areas. One day, picking up a very pretty specimen and allowing it to crawl over my hand, I noticed shortly afterwards that my fingers itched intolerably, and continued to do so for days after. I at once examined my fingers with a lens and found innumerable short hairs sticking in the pores of my skin. Putting the caterpillar under the lens and prodding it with a pencil I noticed a shower of short hairs propelled (like porcupine quills) from the insect. It struck me that this was a method of self-defence adopted by this creature, and that the hairs sticking in the skin caused the irritation. Rubbing makes it worse as the hairs are apt to be either broken off short or pressed further in. In a few days the hairs are gradually cast off from the skin and irritation then stops. Until I made this observation I had imagined (like others) that the irritation was caused by some chemical emanation.

Tapeworm in Young Children.

Dr. R. V. Howell writes: According to Still, tapeworm in children under 3 years of age is very uncommon, so the following case may be of interest to your readers. A visitor brought his boy, aged 18 months, to me and stated that his town doctor had said the child was suffering from tapeworm; from the parent's description of the segments passed I accepted the diagnosis, and instructed him to starve the child from midday, except for a drink of water when thirsty, until the following morning. At bedtime 1 gr. of calomel was given, and at 7, 7.30, and again at 8 the next morning, mx ext. filicis liq., followed by a dose of saline. About 9.30 a.m. the father called at my house and produced a tin containing a very long portion of the tapeworm, and when I called at the house later to see the child another 3 ft. had been passed, and the head. The total length of the worm passed was over 7 ft., and the number of segments contained in this was over 500. Under the microscope the head proved it to be that of *Taenia mediocanellata*.

Post-anaesthetic Vomiting.

Dr. L. Stuart Woolf (Golders Green N.W.11) writes: The discussion on post-anaesthetic vomiting is important. There appears to me to be a large psychological element present, as I have found that delicate handling of the patient before the anaesthetic, and slow but regular administration, appreciably diminish the distressing after-effects. Also, the amount should be the minimum required for the purposes of the surgeon.

Treatment of Haemorrhoids by Submucous Injections.

Dr. John Dunbar (Glasgow) writes: I read the article (British Medical Journal, July 19th, p. 100) by Mr. H. Graeme Anderson and Dr. Cuthbert Dukes with great interest. I have treated a large number of haemorrhoidal cases and have come to the same conclusions regarding those suitable for injections. I would put the percentage of cases a little higher than Mr. Pennington, as my experience has been that about 70 per cent. are suitable. If I am in doubt as to the suitability of a case I inject the piles, and if there is no marked improvement in a week I operate under local anaesthesia. When operating for piles under a local anaesthetic it is very rare to have to overstretch the sphincter, and the operation is painless, except for initial needle puncture. About 80 per cent. of all ano-rectal diseases can be operated on under a local anaesthetic. As to technique, I also advise against enemata because of the congestion produced, and use glycerin suppositories instead. In my opinion piles should not be injected whilst they are prolapsed; if this is done there is usually marked pain on attempting reduction. There is now a plethora of instruments for this treatment, but no expensive instruments are required. A long narrow syringe, such as is used for tuberculin injections, is very suitable along with a wide-bored needle. The needle should be inserted into the pile, not plunged in, as has been described. I have never required any instrument to steady the pile. I agree with Dr. Anderson as to the site of injection. He advises that the bowels be allowed to act forty-eight hours after the injection. My routine is to get the bowels to move daily, and for this reason: if the bowels are confined for forty-eight hours, the faeces are hard, requiring strain to get rid of them and causing prolapse and laceration of the swollen pile. The result is that thrombosis is interfered with and, owing to the laceration, infection may occur, leading to pyaemia. Dr. Anderson may have been fortunate in his cases if this has not occurred, but I prefer not to run the risk. In my article on this treatment, published in the British Medical Journal of November 3rd, 1923 (p. 808), I advised that not more than three piles be injected at one time; I also stated that if large quantities of carbolic were injected carboluria might result. Dr. Morley in a letter criticized this statement. I have seen one case of carboluria where large doses were injected. I have also experimented with various solutions, but have come to the opinion that 10 per cent. carbolic in liquid extract of hamamelis is the safest and best. I have had the same experience as Dr. Anderson when using 20 per cent.—namely, marginal abscesses. In my article I stated that thrombosis was produced. There is definite clinical and pathological evidence of this, and I am glad to see that my statement is supported by Dr. Dukes. I have examined a number of piles removed fourteen to twenty-one days after injection. In every case there was thrombosis. I have injected a number of varicose veins of the leg and, apart from the initial pain, which lasts less than a minute, there is no pain, although definite thrombosis is produced.

A Form of Housemaid's Knee.

Dr. C. J. Hill Aitken (Kilnhurst, near Rotherham) writes: Two young girls complained of pain in the knees. In neither case could I detect much, though in one the bursa under the right patella ligament was enlarged. There was no history of injury. Both improved with rest and in both relapses occurred, the pain being situated in the region of the tubercle of the tibia. The sister of one of the patients suggested that dropping heavily on to the knees whilst scrubbing the floor might account for the knee trouble. I experimented and found that when kneeling with the feet flexed the weight of the body fell chiefly on the patella, but when kneeling with the feet extended it fell on the tubercle of the tibia. One patient admitted that she always came down heavily when she knelt. She is tall and heavy, and whilst scrubbing keeps her feet extended. I have not seen this type of housemaid's knee described in books, but I am told that it is not uncommon.

Neurasthenia.

Dr. Mary C. De Garis (Geelong, Victoria, Australia) writes: Why not attribute neurasthenia to variation in the constitution of the blood—perhaps of its mineral constituents (for example, calcium) or its endocrine factors (for example, hyperthyroidism), or its vitamins, or some of its other components; or, very frequently, to the presence of some toxin? Such a conception would give us the explanation of the wide distribution of the complaints in neurasthenia, and would offer a hopeful prospect of research. . . . In practice, when dealing with neurasthenia, I first suspect hidden dental sepsis, then insufficient diet (vitamins, etc.), often prescribe lime and cod-liver oil, as well as milk, eggs, butter, green vegetables, fruits, and even try a polyglandular endocrine capsule in accordance with any indications.

Simultaneous Existence of Tuberculosis and other Infections.

Dr. Dorothy A. Daly (Fairlight Sanatorium, Hastings) writes: I am very anxious to learn whether any of your readers have carried out consistently at any time a suggestion I put forward in the treatment of tuberculosis. We have all met that suspected case of phthisis with few or, perhaps, even no physical signs in the chest, and in which we rely almost entirely on symptoms taken in conjunction with rise of temperature, etc.; the slight morning cough is free from sputum, so we are without the benefit of a pathological report. I have on more than one occasion noted as an interesting fact, that, if such a case becomes infected with an ordinary catarrhal or pneumococcal cold, the cough may change in character, becoming more bronchial; and if the resultant sputum be examined, tubercle bacilli are discovered in very small numbers, while the microscopic field may be swarming with various other organisms. Unless the case begins to go to the bad, the patient recovers from the cold, and, but for the altered conditions during its course, we might never have established definitely the fact that the case was tuberculous. To my mind, tubercle bacilli, to become active, need some secondary infection; the tuberculous focus lies dormant until some other toxin makes its appearance to stir up the fire. We all realize that 80 per cent. of the community are infected, but predisposition, lowered resistance, etc., are necessary for its activity. Surely this points to the fact that, paradoxical as it may seem, the tubercle bacillus is the secondary infection, following upon the lowering of the bodily resistance by some previous toxin. In the routine examination of sputum a Gram stain is most enlightening, particularly when carried out consistently with the watching of a case. Why not inoculate all patients showing activity with autogenous vaccines prepared from their own sputum, carefully noting from time to time lest there is an addition of some fresh organism?

A Warning.

Dr. W. G. Niall (Chatham) writes to warn Irish doctors and nurses to be circumspect in dealing with a man about 40, clean shaven and with iron-grey hair, who may represent himself to be an Irish tuberculosis and Local Government medical official, and seek to borrow money.

Vacancies.

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 28, 29, 32, and 33 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 30 and 31.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *112*.